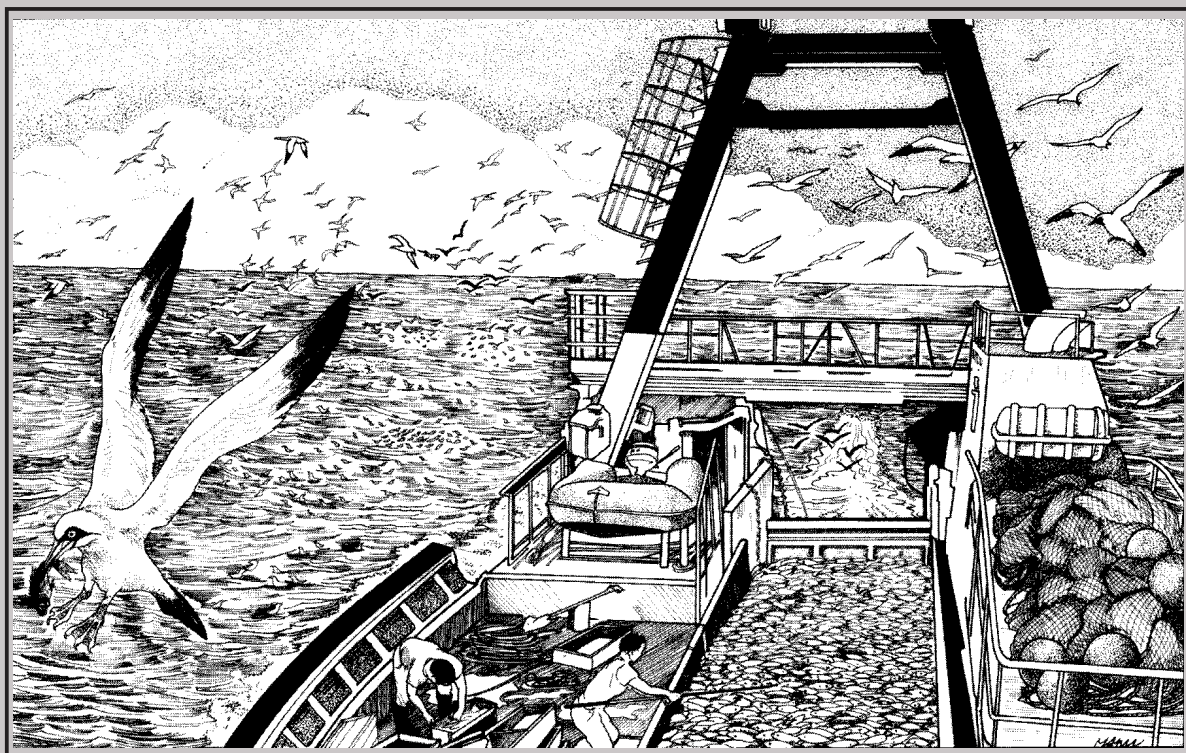




FAO SPECIES IDENTIFICATION GUIDE FOR FISHERY PURPOSES

ISSN 1020-6868

FIELD GUIDE TO THE LIVING MARINE RESOURCES OF NAMIBIA



Food
and
Agriculture
Organization
of
the
United
Nations

NORAD
Norwegian
Agency for
International
Development



THE LIVING MARINE RESOURCES OF NAMIBIA

by

G. Bianchi

Institute of Marine Research
P.O. Box 1870, N-5024
Bergen, Norway

K.E. Carpenter

Department of Biological Sciences
Old Dominion University
Norfolk, Virginia 23529
USA

J.-P. Roux

Ministry of Fisheries and Marine Resources
P.O. Box 394
Lüderitz, Namibia

F.J. Molloy

Biology Department
Faculty of Science
University of Namibia
Private Bag 31
Windhoek, Namibia

D. Boyer and H.J. Boyer

Ministry of Fisheries and Marine Resources
P.O. Box 912
Swakopmund, Namibia

With the financial support of

NORAD

Norwegian Agency for International Development

**FOOD AND AGRICULTURAL ORGANIZATION OF THE UNITED NATIONS
ROME, 1999**



The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agricultural Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

M-40
ISBN 92-5-104345-0

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior permission of the copyright owner. Applications for such permission, with a statement of the purpose and extent of the reproduction, should be addressed to the Director, Publications Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, 00100 Rome, Italy.

© FAO 1999

PREPARATION OF THIS DOCUMENT

This field guide was prepared under the direction of the Species Identification and Data Programme of the Marine Resources Service, Fishery Resources and Environment Division, Fisheries Department, Food and Agriculture Organization of the United Nations (FAO), Rome, Italy. Preparation was supported by the Norwegian Agency for International Development (NORAD). The editorial coordination for this second edition was done at the Department of Biological Sciences, Old Dominion University, Norfolk, Virginia, USA.

The inspiration to produce this guide came from the survey cruises of the Norwegian research vessel "Dr. Fridtjof Nansen" which is directed from the Institute of Marine Research in Bergen. During survey work, the need for a guide specifically for Namibia became obvious. Previous guides are designed for regions north or south, but Namibia has a unique fauna derived from elements of both these neighbouring regions. The need for a revised edition became evident following the development of the orange roughy fishery which occurred after the first edition was published. This guide covers those species that are commonly caught in this new fishery in more detail.

The number of species covered in this guide far exceeds those that are currently being exploited in Namibia on a commercial basis. However, many species are caught incidentally in commercial fisheries or by sports anglers and are potentially significant. In addition, it is often important to consider non-target species for ecological considerations, general management of resources, and for better understanding and management of primary target species.

As would be expected in an undertaking of this magnitude, there is undoubtedly room for improvement. Users are encouraged to correspond with the authors and editors to help improve future versions of this guide.

Project director: P. Oliver, FAO, Rome.

Technical editors (this edition): K.E. Carpenter and T.R. Wasaff, Old Dominion University, Norfolk, USA.

Technical editors (first edition): K.E. Carpenter and A.-L. Agnalt, FAO, Rome; G. Bianchi, Institute of Marine Research, Bergen; and D. Boyer, Ministry of Fisheries and Marine Resources, Namibia.

Illustrations (new for this edition): E. D'Antoni, FAO, Rome.

Illustrations (new for first edition): P. Lastrico, FAO, Rome.

Page composition and indexing (this edition): T.R. Wasaff, Old Dominion University, Norfolk, USA.

Page composition and indexing (first edition): G. Sciarappa-Demuro and M. Kautenberger-Longo, FAO, Rome.

Editorial assistance (this edition): N. De Angelis and M. Kautenberger-Longo, FAO, Rome.

Cover illustration: E. D'Antoni, FAO, Rome.

Bianchi, G.; Carpenter, K.E.; Roux, J.-P.; Molloy, F.J.; Boyer, D.; and Boyer, H.J.

FAO species identification field guide for fishery purposes. The living marine resources of Namibia.

Rome, FAO. 265 p., 11 colour plates.

SUMMARY

This field guide covers the major resource groups likely to be encountered in the fisheries of Namibia. These include seaweeds, shrimps, lobsters, crabs, bivalves, gastropods, cephalopods, hagfishes, sharks, batoid fishes, chimaeras, bony fishes, turtles, seabirds, and marine mammals. The introduction outlines the geographical, environmental, and ecological factors influencing fisheries, and the basic components of the fisheries of Namibia. As an aid to identification to higher taxonomic levels, a pictorial index to families is included and most groups are preceded by an illustrated guide to orders and families. Each resource group includes general remarks, an introduction to the technical terms and measurements pertinent to that group, and a guide to species likely to be encountered in fisheries. Each species account provides scientific nomenclature, FAO common names, sizes, notes on fisheries, habitat and biology, diagnostic features, and one or more illustrations. An annotated checklist of sharks, batoid fishes, chimaeras, bony fishes, and marine mammals, and a list of important references are appended. The introduction and guide sections are fully indexed. Finally, 88 colour photographs are presented of fishes caught mostly by trawl.

Author's credits: Introduction by G. Bianchi and D. Boyer; seaweeds, bivalves, and gastropods by F.J. Molloy; shrimps, lobsters, crabs, and cephalopods by G. Bianchi and K.E. Carpenter; hagfishes, sharks, batoid fishes, chimaeras, bony fishes, and turtles by G. Bianchi, K.E. Carpenter, H.J. Boyer, and D. Boyer; seabirds by J.-P. Roux and D. Boyer; marine mammals by J.-P. Roux; checklist of fishes by K.E. Carpenter and H.J. Boyer.

Acknowledgements: We thank: Oddgeir Alvheim (Institute of Marine Research, Bergen) who reviewed several versions of this guide, provided very helpful advice for making this guide useful on board research vessels in Namibia, and provided many new photographs for the second edition; Jeppe Kolding (Department of Fisheries and Marine Biology, University of Bergen) who provided most of the colour photographs used in this guide; Martina A. Compagno Roeleveld (South African Museum, Cape Town) for valuable taxonomic and natural history advice on the cephalopod section of this guide; Johannes Holtzhausen and Carola Kirchner (Ministry of Fisheries and Marine Resources, Swakopmund) for very helpful advice on recreational fish and fisheries; Laila Linde-Lossius (Luderitz Fisheries Research Center) for valuable fisheries and natural history information for the shrimp section of this guide; Lima Martens (Ministry of Fisheries and Marine Resources, Swakopmund) for advice on the monkfish; Rudi Cloete, Charlton Heinrich Lesch, Lizette Voges, and Stephanus Voges for advice on fisheries; Johnny Gamatham (Ministry of Fisheries and Marine Resources, Swakopmund) for many improvements on the field use of the guide; Alfred Kronitz (Swakopmund) for information from a highly experienced angler's perspective; Charles Beyers (Ministry of Fisheries and Marine Resources, Swakopmund) for advice on crustaceans; Bronwen Currie (Ministry of Fisheries and Marine Resources for Swakopmund) for advice on invertebrates; Deon Louw (Ministry of Fisheries and Marine Resources, Swakopmund) for help with photography; M. Eric Anderson (J.L.B. Smith Institute of Ichthyology, Grahamstown); Leonard J.V. Compagno (South African Museum, Cape Town), Ofer Gon (J.L.B. Smith Institute of Ichthyology, Grahamstown), Phillip C. Heemstra (J.L.B. Smith Institute of Ichthyology, Grahamstown); Percy H. Hulley (South African Museum, Cape Town), Tomio Iwamoto (California Academy of Sciences, San Francisco), John R. Paxton (Australian Museum, Sydney), Stuart G. Poss (Gulf Coast Research Laboratory, Mississippi), William J. Richards (National Marine Fisheries Service, Miami), and William F. Smith-Vaniz (National Biological Survey, Florida) who provided valuable taxonomic advice on fishes; Thang Do-Chi, David Die, and Luca Garibaldi (FAO, Rome) for their help on FAO common names; Burger Oelofsen (Ministry of Fisheries and Marine Resources, Windhoek), and Ben Van Zyl (Ministry of Fisheries and Marine Resources, Swakopmund) for help, support, and advice during the revision of this guide.

TABLE OF CONTENTS

	Page
INTRODUCTION	1
Shelf assemblages	2
Upper slope assemblages	3
Pelagic species	3
Fisheries	4
The taxa included in this guide	6
How to use this guide	6
A PICTORIAL INDEX TO DIVISIONS, ORDERS, OR FAMILIES	8
SEaweeds	22
TECHNICAL TERMS	22
DIVISION RHODOPHYTA - Red Algae	23
Gracilariaceae	23
Gigartiniaceae	23
Cryptonemiaceae	24
Gelidiaceae	24
Bangiaceae	24
DIVISION PHAEOPHYTA - Brown Algae	25
Laminariaceae	25
Alariaceae	25
DIVISION CHLOROPHYTA - Green Algae	25
Ulvaceae	25
SHRIMPS AND PRAWNS	26
TECHNICAL TERMS AND MEASUREMENTS	26
GUIDE TO ORDERS AND FAMILIES	
Infraorder Penaeidea - Penaeid Shrimps	27
Infraorder Caridea - Caridean Shrimps	28
GUIDE TO SPECIES	
Solenoceridae	30
Aristeidae	30
Penaeidae	31
Oplophoridae	32
Nematocarcinidae	32
Pasiphaeidae	33
Palaemonidae	33
Pandalidae	33
Crangonidae	34
LOBSTERS	35
TECHNICAL TERMS AND MEASUREMENTS AND ILLUSTRATED GUIDE TO FAMILIES	35
GUIDE TO SPECIES	
Palinuridae	37
Scyllaridae	38
Nephropidae	38

	Page
CRABS	39
TECHNICAL TERMS AND MEASUREMENTS	39
GUIDE TO ORDERS AND FAMILIES	
Suborder Anomura - Hermit Crabs, Stone Crabs, King Crabs, and Squat Lobsters	40
Suborder Brachyura - True Crabs	41
GUIDE TO SPECIES	
Lithodidae	44
Homolidae	44
Majidae	45
Calappidae	45
Geryonidae	45
Portunidae	46
Grapsidae	46
BIVALVES AND GASTROPODS	47
GUIDE TO SPECIES	
Mytilidae (Class Bivalvia - pelyceps, clams, oysters, and allies)	47
Patellidae (Class Gastropoda - univalves, conches, whelks, chanks, and allies)	48
CEPHALOPODS	49
TECHNICAL TERMS AND MEASUREMENTS	49
GUIDE TO ORDERS AND FAMILIES	
Order Sepioidea - Cuttlefish, Ram's Horn Squids, and Bob-tailed Squids	51
Order Teuthoidea - Inshore and Oceanic Squids	52
Order Vampyromorpha - Black Octopus	57
Order Octopoda - Octopuses	57
GUIDE TO SPECIES	
Sepiidae	59
Loliginidae	61
Onychoteuthidae	63
Histioteuthidae	63
Brachioteuthidae	64
Ommastrephidae	64
Thysanoteuthidae	67
Octopodidae	67
JAWLESS FISHES	69
Order Myxiniiformes - Hagfishes	69
SHARKS	70
TECHNICAL TERMS AND MEASUREMENTS	70
GUIDE TO ORDERS AND FAMILIES	
Order Hexanchiiformes - Cow and Frill Sharks	72
Order Lamniiformes - Mackerel Sharks	72
Order Carcharhiniiformes - Ground Sharks	73
Order Squaliiformes - Dogfish Sharks	75
Order Squatiniformes - Angel Sharks	75

	Page
GUIDE TO SPECIES	
Hexanchidae	76
Chlamydoselachidae	77
Odontaspidae	77
Lamnidae	77
Alopiidae	78
Scyliorhinidae	78
Triakidae	80
Hemigaleidae	81
Carcharhinidae	81
Squalidae	82
Oxynotidae	88
Echinorhinidae	88
Squatinae	88
BATOID FISHES - SKATES, RAYS, AND GUITARFISHES	89
TECHNICAL TERMS AND MEASUREMENTS	89
GUIDE TO ORDERS AND FAMILIES	90
Order Torpediniformes - Electric Rays	90
Order Rajiformes - Guitarfishes and Skates	90
Order Myliobatiformes - Stingrays	91
GUIDE TO SPECIES	
Torpedinidae	92
Narkidae	92
Rhinobatidae	92
Rajidae	93
Dasyatidae	98
Gymnuridae	99
Myliobatidae	99
CHIMAERAS	100
TECHNICAL TERMS AND MEASUREMENTS	100
GUIDE TO ORDERS AND FAMILIES	100
Order Chimaeriformes - Chimaeras	100
GUIDE TO SPECIES	
Callorhynchidae	101
Chimaeridae	101
Rhinochimaeridae	102
BONY FISHES	103
TECHNICAL TERMS AND MEASUREMENTS	103
GLOSSARY OF TECHNICAL TERMS USED FOR BONY FISHES	107
GUIDE TO ORDERS AND FAMILIES	110
Order Albuliformes - Bonefishes	110
Order Notacanthiformes - Halosaurs and Spiny Eels	110
Order Anguilliformes - Eels	111
Order Clupeiformes - Herrings and allies	112
Order Siluriformes - Catfishes	112
Order Salmoniformes - Smelts and allies	113
Order Stomiiformes - Bristlemouths and allies	114
Order Aulopiformes - Greeneyes, Lizardfishes, and allies	116

	Page
Order Myctophiformes - Blackchins and Lanternfishes	117
Order Gadiformes - Hakes, Cods, and allies	118
Order Ophidiiformes - Cusk Eels and allies	119
Order Batrachoidiformes - Toadfishes	119
Order Lophiiformes - Anglerfishes	119
Order Gobiesociformes - Clingfishes	122
Order Atheriniformes - Silversides and allies	122
Order Beloniformes - Flyingfishes, Sauries, and allies	122
Order Lampriformes - Opahs and allies	123
Order Beryciformes - Alfonsinos and allies	124
Order Cetomimiformes - Whalefishes	125
Order Zeiformes - Dories and allies	125
Order Syngnathiformes - Pipefishes and allies	126
Order Scorpaeniformes - Scorpionfishes	127
Order Perciformes - Perch-like Fishes	128
Order Pleuronectiformes - Flatfish	139
Order Tetraodontiformes - Tetradontiform Fishes	140
GUIDE TO SPECIES	
Albulidae	141
Notacanthidae	141
Ophichthidae	141
Congridae	142
Clupeidae	142
Engraulidae	143
Ariidae	144
Alepocephalidae	144
Chlorophthalmidae	145
Synodontidae	145
Myctophidae	145
Merlucciidae	147
Moridae	148
Macrouridae	149
Ophidiidae	152
Batrachoididae	153
Lophiidae	154
Atherinidae	154
Exocoetidae	155
Scomberesocidae	155
Lampridae	156
Trachipteridae	156
Ateleopodidae	157
Berycidae	157
Diretmidae	157
Trachichthyidae	158
Zeidae	159
Oreosomatidae	160
Macroramphosidae	161
Congiopodidae	161
Scorpaenidae	162
Triglidae	163
Acropomatidae	164

	Page
Polyprionidae	164
Serranidae	165
Epigonidae	166
Pomatomidae	167
Rachycentridae	167
Carangidae	167
Coryphaenidae	169
Bramidae	170
Emmelichthyidae	171
Haemulidae	171
Sparidae	172
Sciaenidae	176
Dichistiidae	178
Cheilodactylidae	178
Mugilidae	179
Sphyracidae	179
Ammodytidae	180
Callionymidae	180
Gobiidae	180
Gempylidae	180
Trichiuridae	183
Scombridae	184
Xiphiidae	187
Istiophoridae	187
Centrolophidae	188
Nomeidae	190
Stromateidae	191
Tetragonuridae	191
Bothidae	191
Soleidae	193
Cynoglossidae	194
Tetraodontidae	195
SEA TURTLES	196
TECHNICAL TERMS AND MEASUREMENTS	196
GUIDE TO SPECIES	
Cheloniidae	197
Dermochelyidae	198
SEABIRDS	199
TECHNICAL TERMS USED FOR SEABIRDS	199
GUIDE TO SPECIES	
Spheniscidae	200
Diomedidae	200
Procellariidae	202
Pelecanidae	203
Sulidae	203
Phalacrocoracidae	203
Laridae	205

	Page
MARINE MAMMALS	206
ORDER CETACEA - WHALES AND DOLPHINS	206
TECHNICAL TERMS	206
GUIDE TO SPECIES	
Suborder Mysticeti - Baleen Whales	207
Balaenidae	207
Neobalaenidae	207
Balaenopteridae	207
Suborder Odontoceti - Toothed Whales and Dolphins	208
Physeteridae	208
Delphinidae	209
ORDER PINNIPEDIA - SEALS	211
TECHNICAL TERMS	211
Otariidae	212
Phocidae	212
 REFERENCES	 213
 CHECKLIST OF FISHES AND MARINE MAMMALS	 215
 INDEX OF SCIENTIFIC AND VERNACULAR NAMES	 238
 COLOUR PLATES	 265

INTRODUCTION

This guide was developed as a working tool for those involved in the fisheries sector in Namibia, including researchers, technicians, observers collecting statistics on board fishing vessels, inspectors, and students in marine and fishery science. It includes species of seaweeds, crustaceans, cephalopods, cartilaginous and bony fishes, seabirds, and marine mammals, that are believed to be of present or potential economic interest, or that represent important elements in the marine ecosystem of the Namibian shelf and slope areas.

Fisheries represent an important sector in the Namibian economy. Following independence in 1990, the sector grew until around 800 000 t were harvested in 1993 (Fig. 1) and fish products accounted for more than 20% of Namibian exports. Despite a decline in the total catch over the next few years, the export value remained high and by the end of the 1990's fisheries were worth more than N\$2 billion per annum.

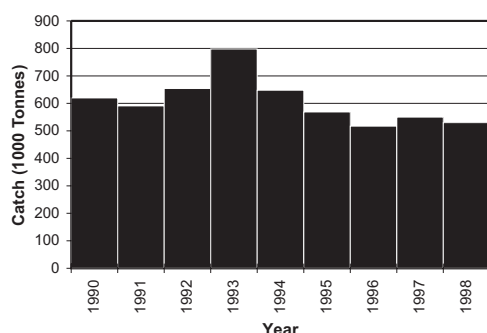


Fig. 1 Commercial landings

The coast and shelf topography

Namibia has a coastline of about 1 500 km, running in a north-south direction, with few bays and indentations. The coastal plain is 100 to 200 km wide and is hyper-arid, receiving a mean rain-fall of less than 100 mm per annum. This is the Namib Desert. The Kunene River and the Orange River are the only perennial rivers in the region and they form natural boundaries with Angola and South Africa, respectively (Fig. 2).

The shelf area from the shore to a depth of 200 m is approximately 110 000 km², and about double as much to 1 000 m. The shelf is widest off the Orange River and off Walvis Bay, and narrowest off Kunene River to Cape Frio. The depth of the shelf edge varies, averaging about 350 m. Two pronounced double shelf breaks occur at depths of 140 and 400 m in the Walvis Bay region (Fig. 2).

The bottom sediments form textural zones parallel to the coast, becoming finer seawards. This pattern is altered inshore by the presence of rivers and biological deposition. A significant feature is the presence of a mud belt in the midshelf, between Cape Frio and Conception Bay, about 500 km long. The sediments are mainly of biogenic origin, resulting from the high productivity of the upwelled waters of the Benguela system.

Environmental regimes

The coastal waters of Namibia are part of the Benguela system, one of the 4 major eastern boundary current systems of the world. This is a region of cool upwelled coastal water found approximately between 15°S and 34°S and generated by the intense equator-ward wind stress pattern of the Benguela system. The northern boundary corresponds to the frontal zone between the Angola and Benguela currents, located off

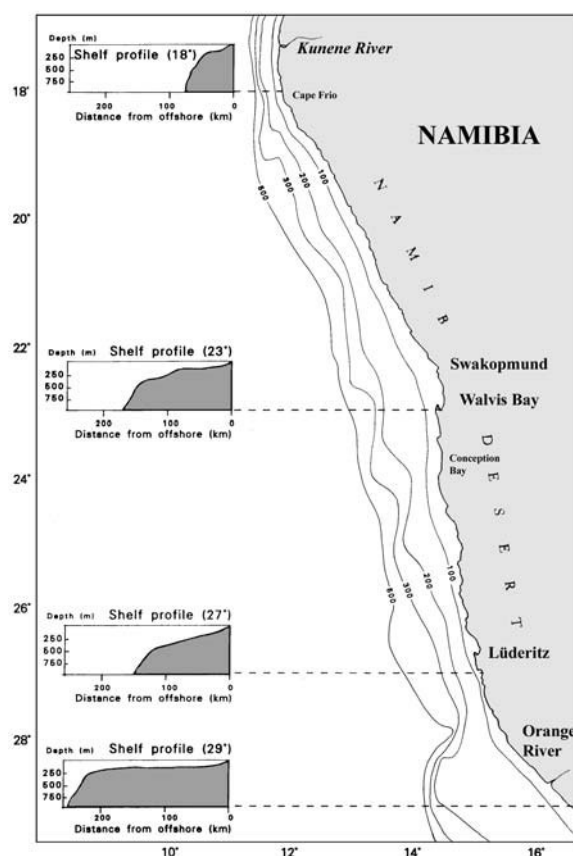


Fig. 2 Coastal configuration and continental shelf bathymetry off Namibia

southern Angola (Fig. 3). The southern boundary of the Benguela system is the warm retroflexion zone or return current of the Agulhas System. Upwelling intensity is not uniform in space or in time, as there are short-term and seasonal differences in the wind regime, and because of coastline and shelf topography. The major centre of upwelling off Namibia is from Lüderitz to the Orange River and is believed to effectively divide the Benguela system into 2 regions, acting as an environmental barrier for some key species. Upwelling cells of lesser intensity also occur further north, the most notable being off Cape Frio.

The South Atlantic high pressure system is a permanent feature of this region, and it is subject to seasonal shifts of its centre, from about 30°S in summer to 26°S in winter. The anti-clockwise flow of air around this high pressure cell is nearly parallel to the Namibian coast. These winds are usually present throughout the year, being strongest in winter and spring. This makes the northern part of the Benguela region somewhat different from the

southern region (the west coast of South Africa) where upwelling is seasonal and present mainly in spring and summer. Here, westerly winds unfavourable to upwelling prevail in wintertime.

The strong upwelling brings nutrient-rich water to the surface and forms the basis of the high primary production that sustains large zooplankton and pelagic fish stocks. However, this bottom water can sometimes be virtually anoxic due to high sedimentation rates and the subsequent degradation of organic matter, possibly supplemented by intrusions of bottom waters with low concentrations of dissolved oxygen from the Angola Dome region. In some areas, especially in the central region, sulphate reduction by anoxic bacteria is the source of "sulphur eruptions"; typified by a "rotten egg" odour. This can result in mass mortalities of fish and other marine organisms, caused by these organisms being trapped against the coast by these toxic and often anoxic waters. This phenomenon only affects a limited part of the shelf, particularly the coastal waters around Walvis Bay. Most of the shelf and bottom slope off Namibia are inhabited by a rich demersal community.

Shelf assemblages

Changes in the distributions of demersal fauna occur mainly along the depth gradient and with latitude. The following description of the main demersal assemblages is based on a preliminary analysis of the bottom-trawl data collected by the RV 'Dr. Fridtjof Nansen' and therefore does not include near shore grounds. This vessel has been operating in Namibian waters since 1990. The major faunal boundary appears to be depth-related and corresponds to the shelf edge (at depths averaging 300-350 m), separating shelf from slope assemblages (Fig. 4).

Main associations found on the shelf are distributed along a latitudinal gradient and the most important faunal boundary appears to be at about 27°S. The assemblage of the central shelf area north of Lüderitz (Fig. 4,a) is dominated by Cape hake *Merluccius capensis* and pelagic goby *Sufflogobius bibarbatus*, and has a low species diversity, consistent with the presence of hypoxic waters throughout. This region (between 20° and 27°S) is the main area of oxygen-deficient shelf water in the Benguela system. Higher species diversity is found on the shelf south of Lüderitz (Fig. 4,b). Here, a number of species reach their northernmost limit, having their main distribution off South Africa. Although oxygen content is also low, the conditions are probably not so extreme as in the northern shelf region. Dominating fish species are: hakes *Merluccius paradoxus* and *M. capensis*, silver scabbardfish *Lepidopus caudatus*, Cape bonnetmouth *Emmelichthys nitidus nitidus*, Cape John dory *Zeus capensis*, Cape gurnard *Chelidonichthys capensis*, kingklip *Genypterus capensis*, snoek, *Thyrsites atun*, and Cape elephantfish *Callorhynchus capensis*. The inverte-

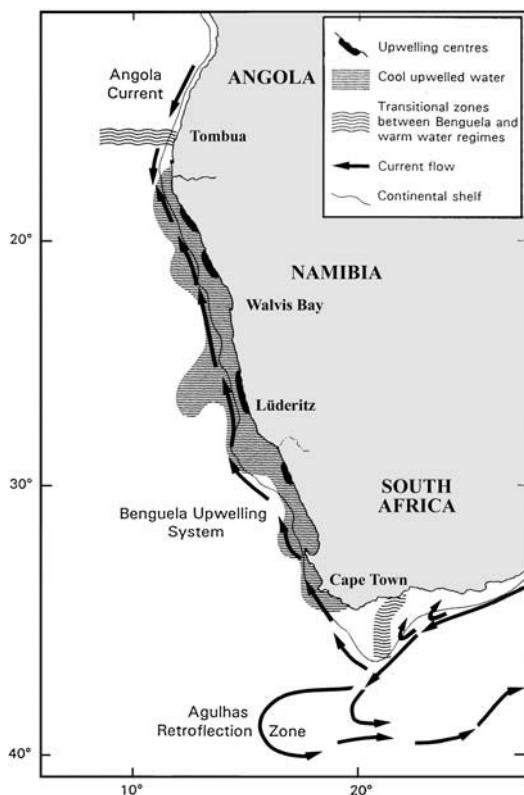


Fig. 3 Schematic diagram of major oceanographic features off southwestern Africa (redrawn from Payne and Crawford, 1989)

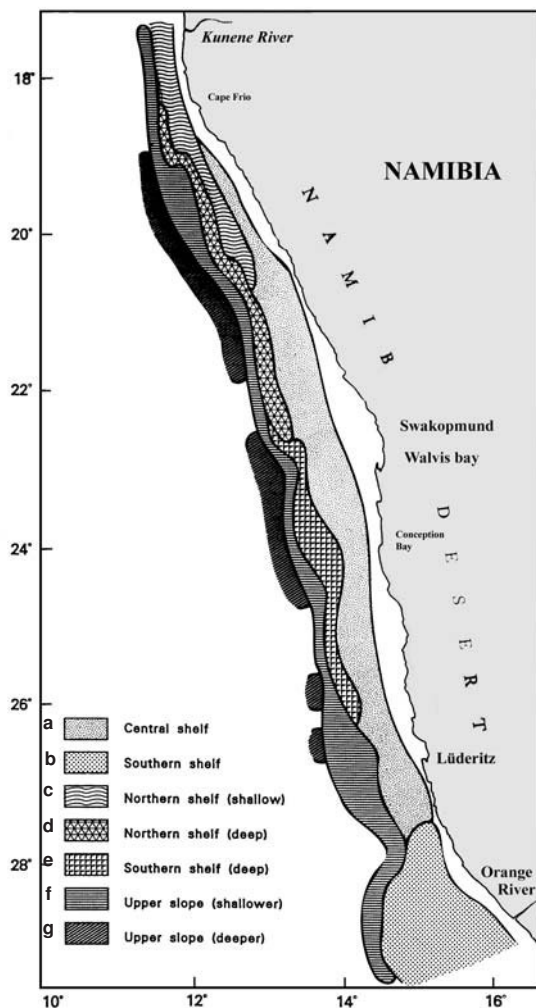


Fig. 4 Distribution of main demersal fauna assemblages off Namibia

brates are mainly represented by a number of species of squid and cuttlefish: *Loligo reynaudi*, *Todaropsis eblanae*, and *Sepia australis*.

In the northern shelf region, from the Kunene River (the border with Angola) to about midway to Walvis Bay (Fig. 4,c), the assemblage has a number of species that reach their southernmost distribution. These include large-eye dentex *Dentex macrophthalmus*, thinlip splitfin *Synagrops microlepis*, and a little deeper (Fig. 4,d) longfin bonefish *Pterothrissus belloci* and African mud shrimp *Solenocera africana*. The southernmost extent of these species is variable however, depending mainly on the strength of upwelling. Dur-

ing Benguela Niño events, they may be observed as far south as Walvis Bay. The dominant species in trawl catches are Cape hake and Cape horse mackerel *Trachurus capensis*. Common in the deeper part of the shelf in the area just south of Walvis Bay (Fig. 4,e) are pelagic goby, Cape hake (these latter 2 are also found in the adjacent shallower shelf area), Cape monk *Lophius vomerinus*, Angola flying squid *Todarodes sagittatus angolensis*, blackbelly rosefish *Helicolenus dactylopterus*, and lanternfishes (family Myctophidae) and a few other deep-water species.

Upper slope assemblages

The upper slope assemblages (Fig. 4,f and 4,g) include a number of species also found on the shelf as well as more typical slope species that become predominant at about a depth of 500 m. In the former group are deepwater Cape hake *Merluccius paradoxus*, Cape hake, blackbelly rosefish, grenadiers (*Caelorinchus simorhynchus* and *Nezumia* spp.), lanternfishes, smallscale slimehead *Hoplostethus melanopus*, and African sawtail catshark *Galeus polli*. Discrete aggregations of orange roughy (*Hoplostethus atlanticus*), have recently supported a new fishing industry. These are found at the shelf-break between 600 m and 1000 m, each aggregation typically being only a few kilometers in extent and separated by some 200 km from the next aggregation. Alfonsino *Beryx splendens*, cardinals *Epigonus* sp., and oreos (mainly *Allocyttus verrucosus*) are also found in high densities at similar depths, but have yet to be found in sufficient quantities to support a commercially viable fishery. Other typical slope dwellers include lightfishes (family Phosichthyidae), roughsnout grenadier *Trachyrincus scabrus*, squalid sharks *Deania calcea* and *Centrophorus squamosus*, and striped red shrimp *Aristeus varidens*.

Pelagic species

The main pelagic species are southern African pilchard *Sardinops ocellatus* and southern African anchovy *Engraulis capensis* (referred to here sometimes simply as pilchard and anchovy respectively) which are found throughout the temperate regions of southern Africa. However, their distributions are not uniform and 2 distinct populations of anchovy and pilchard are separated by the presence of the main upwelling centre off Lüderitz. In years when upwelling diminishes, movement of fish between the 2 populations may occur. Spawning and nursery areas of the Namibian stocks appear to be in the vicinity of, and north of, Walvis Bay. Two main spawning grounds were identified for the pilchard (Fig. 4); younger fish spawn in the warmer waters of the north and older pilchard in the vicinity of Walvis Bay. Spawning grounds of anchovy appear to coincide with those of younger adult pilchard. Recruitment for both species takes place in autumn and winter off Walvis Bay (Fig. 5).

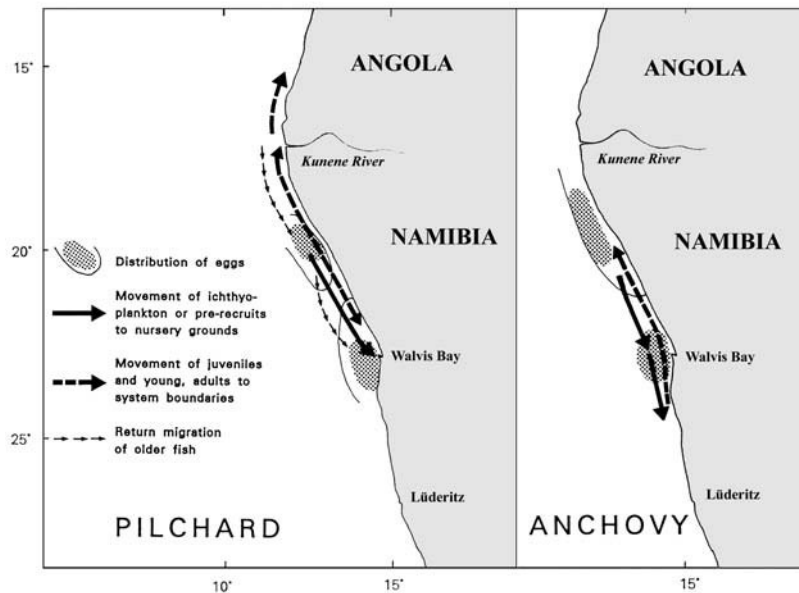


Fig. 5 Movement patterns of various life stages of the pilchard *Sardinops ocellatus* and the anchovy *Engraulis capensis* off Namibia (redrawn from Payne and Crawford, 1989)

Fisheries

The high productivity of the Benguela system supports large commercial fish stocks. Three major resource groups have contributed to almost 90% of the total catches since the 1960's: the epipelagic shoaling fishes pilchard, anchovy, and young horse mackerel, the midwater Cape horse mackerel, and the Cape and deepwater Cape hakes. Two major industrial fisheries were established off Namibia in the 1950's and 1960's: an in-shore pelagic fishery for pilchard and anchovy, mainly exploited by a Namibia-based purse seine fleet, and an offshore trawl fishery for the hakes and Cape horse mackerel, exploited by a number of nations' distant water fleets.

The epipelagic species have been exploited mainly by purse seiners. Pilchard catches peaked at 1.4 million t in 1968, but following several collapses and recoveries, declined to 11 000 t by 1980 (Fig. 6). Despite a brief recovery in the early 1990's the stock collapsed again in 1995, such that the 1996 catch was a mere 2 000 t. Anchovy (Fig. 7) and juvenile horse mackerel catches have provided some stability to the pelagic industry, although the total catch of all species has varied between 107 thousand t (in 1996) and over 1.5 million t (in 1968). The Benguela Niño events in 1972, 1984, and 1995 have doubtless had an impact on the status of these stocks, however, the main cause of each of the collapses of the pelagic stocks, especially pilchard, is believed to be over-

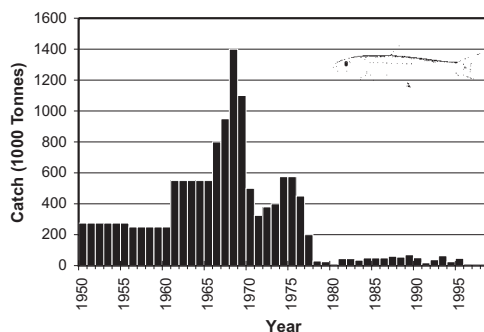


Fig. 6 Commercial landings of the pilchard (*Sardinops ocellatus*)

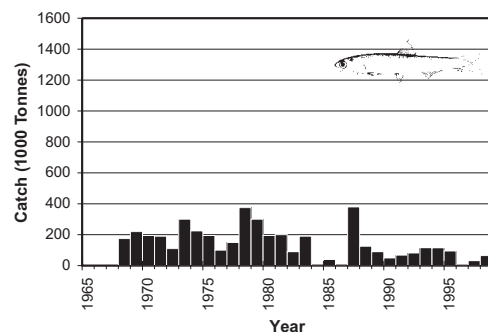


Fig. 7 Commercial landings of the anchovy (*Engraulis capensis*)

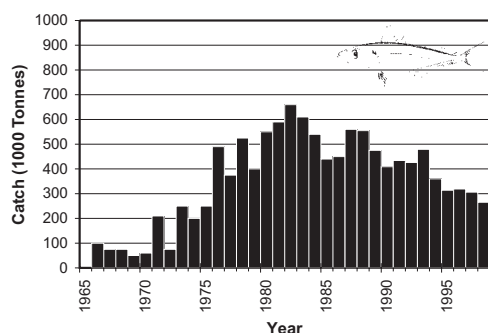


Fig. 8 Commercial landings of the Cape horse mackerel (*Trachurus capensis*) (purse seine and trawl catches combined)

fishing. Total allowable catches for the pelagic resources have been drastically reduced in recent years, but this has not so far lead to any sustained recovery.

Cape horse mackerel are exploited by 2 different components of the fisheries. As juveniles (first 2 years of their lives) they are caught by purse seiners (catches sometimes exceeding 100 000 t). Adult horse mackerel are caught by midwater trawlers. Two species of horse mackerel overlap off southern Angola and northern Namibia; the main area of distribution of the Cunene horse mackerel *Trachurus trecae* is Angola and northward to the Gulf of Guinea while the Cape horse mackerel is found from northern Namibia, to the Agulhas Bank. Catches of the latter species were about 46 000 t in 1969 but they increased to about 600 000 t in the middle of the 1980's, because of the parallel increase in effort of the Polish and Soviet fleets (Fig. 8). Chub mackerel and snoek have been important bycatches of the midwater fishery, but in recent years have been rarely caught in any quantity. Snoek is also fished by line gear, both commercially and as part of the popular recreational fishery.

The bulk of the bottom trawl fishery consists of the 2 species of hake, *M. capensis* and *M. paradoxus*. The latter occurs in deeper waters but both species overlap at intermediate depths. The identification of the 2 species is very difficult and in fishery statistics the 2 have been treated together. Hakes are found close to the bottom during daytime but rise to intermediate waters during nighttime, probably following their prey. The fisheries off Namibia started in the early 1960's and the catches climbed from about 45 000 t in 1964 to 850 000 t in 1972 (Fig. 9). Since then, catches decreased and a major task of the Namibian fishery authorities after independence has been to promote recuperation of this previously over-exploited stock.

There are demersal species caught with bottom trawls and with line gear, that are not as abun-

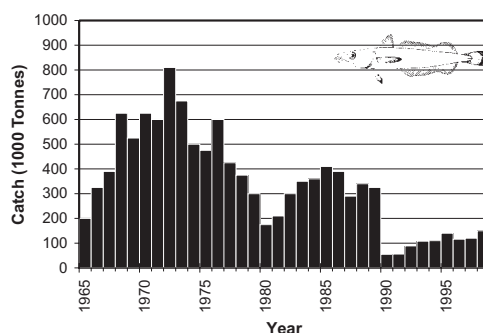


Fig. 9 Commercial landings of the hakes (*Merluccius capensis* and *M. paradoxus*)

dant as hake but are of significant economic importance because they command high prices, particularly Cape monk.

Prior to independence monk was caught as a bycatch of the hake trawl fishery. Recently a monk-directed fishery using bottom trawls has developed. During the second half of the 1990's catches averaged around 10 000 t per annum, of which a third is still taken by hake trawlers. Several other species form a small bycatch of the demersal trawl fishery, notably kingklip, sole (*Austroglossus microlepis*), and various redfishes ("reds"), such as jacobever (*Helicolenus dachylopterus*) and large-eye dentex (*Dentex macrophthalmus*).

In 1994 commercially viable quantities of orange roughy were discovered on the Namibian shelf-break. By the end of the 1990's 4 spawning aggregations had been found in Namibian waters, supporting a small but economical deep-water trawl fishery. Catches exceeded 12 000 t per annum between 1996 and 1998, but are expected to decline thereafter as the stock reaches its optimal sustainable biomass. Exploration for further aggregations is actively encouraged by the Namibian authorities, while catches of alfonsino (*Beryx splendens*), cardinals (Epigonidae) and oreos (Oreosomatidae) suggest that the deep-water fishery may diversify in future.

The West African geryon crab *Chaceon maritae* forms the basis of the largest crustacean fishery of the northern Benguela System, with annual catches approaching 10 000 t in the 1980's. The catch had declined to around 2 000 t per annum by the late 1990's.

Another important invertebrate resource is Cape rock lobster *Jasus lalandii*. This species, found mainly in the southern part of Namibia, represented the world's largest catch for any single *Jasus* species. Catches were high from the beginning of the 1950's to the 1960's, ranging from about 4 000 to 13 000 t, but dropped in the 1970's to about 1 500 t and have decreased further in recent years (Fig. 10). In the mid-1990's the catch has generally been less than 250 t per annum.

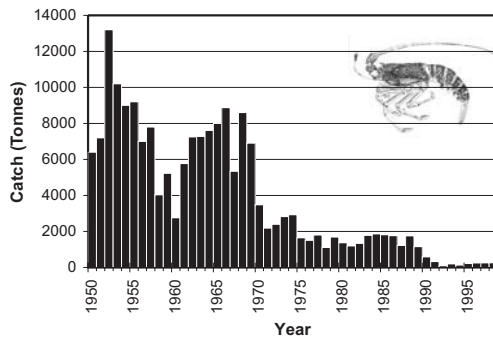


Fig. 10 Commercial landings of the Cape rock lobster (*Jasus lalandii*)

Namibia also possesses an important shore-based recreational fishery. Kob and steenbras are the main species caught, primarily by beach anglers. Sharks and galjoen are also popular target species. Kob is also caught by recreational fishers on ski-boats and commercially from handline vessels.

The taxa included in this guide

The species included in this guide are those considered to be of present or potential interest to fisheries, or those that may be important in fisheries production or for fisheries management. Not included in this guide are organisms that are normally too small to occur in fisheries or are of only minor importance in Namibia. Some species are included because they occur frequently in the catch of fisheries or may be important in the food chain of fisheries organisms. Monitoring of abundances of these species may be useful in fisheries management for explaining and predicting population fluctuations of target species.

How to use this guide

This guide is divided into major taxonomic groups that can be located according to either the written index or the pictorial index to families. The major resource groups and the orders, families, and species included in them are listed in approximate evolutionary or phylogenetic order. This order was chosen instead of alphabetical order so that taxa with similar body shapes would usually be found in 1 section. This facilitates location and comparison of similar groups of taxa.

The components of this guide are interrelated and sometimes several sections should be consulted to ensure accurate identification. These components include a "Pictorial Index to Divisions, Orders, or Families," a "Guide to Orders and Families," and a "Guide to Species." In addition, each major resource group begins with an illustrated glossary of the important technical terms and measurements relevant for identification. It is useful to become familiar with these terms before attempting to make an identification.

It is often essential to identify an organism to its family level before attempting to determine its species name. This is because **many of the important characters listed in the "Guide to Families" are not listed again in the "Guide to Species."** In some a case, the family identity will be obvious simply by consulting the "Pictorial Index to Families." If not, the "Guide to Orders and Families" and "Guide to Species" provide key characters that will allow identification to family and species level. Each major resource group is introduced with a "Guide to Orders and Families" unless there are only a few families and species (the seaweeds, sea turtles, sea birds, and marine mammals) where it is most convenient to begin directly with a "Guide to Species." In a case where there is more than 1 order listed in the "Guide to Orders and Families," the order should first be determined. This is done by comparing the appropriate features of your organism with the order characters (Fig. 11). When there are multiple families included under each order, 2 types of captions are provided. Captions listed in uppercase, bold, and highlighted in grey are the key characters that can be used to distinguish between the orders in each major resource group. These characters are listed only once, usually under the first family appearing in the order. Begin with the first order listed and continue comparing features of your organism until a match is found. Once the order is known, use the same method to determine the family within the order using the family key characters. These are the characters listed in normal lower-case typeface. If species within that family are considered of importance to fisheries, they are included in the guide to species and the page number listed in the guide to families directs the user to the appropriate section. The species can then be identified within the guide to species by matching the key characters with the features of the specimen (Fig. 12).

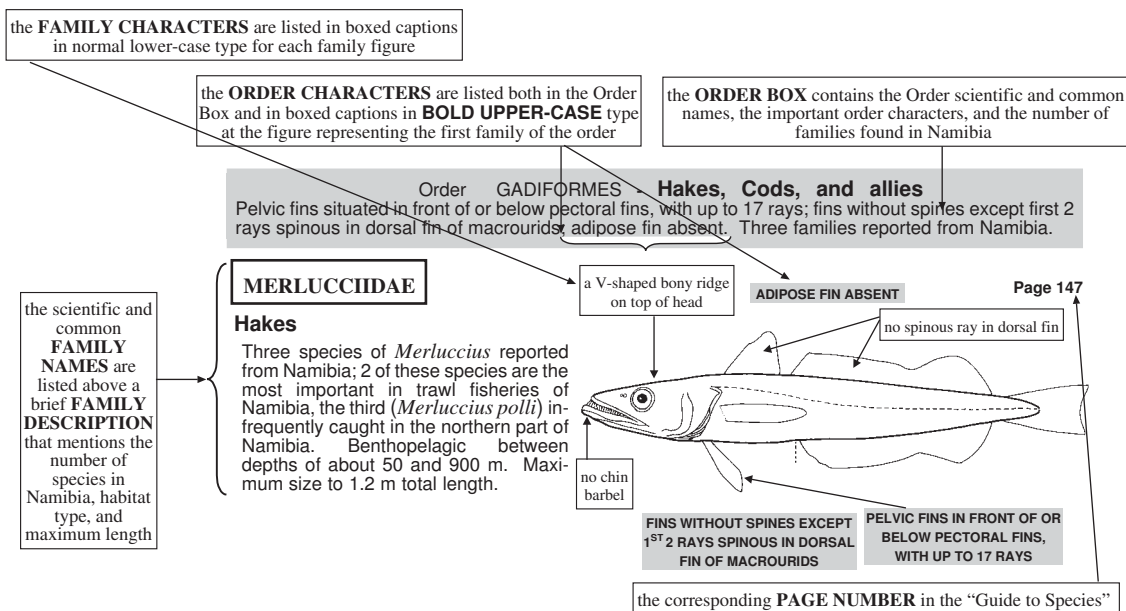


Fig. 11 The "Guide to Orders and Families"

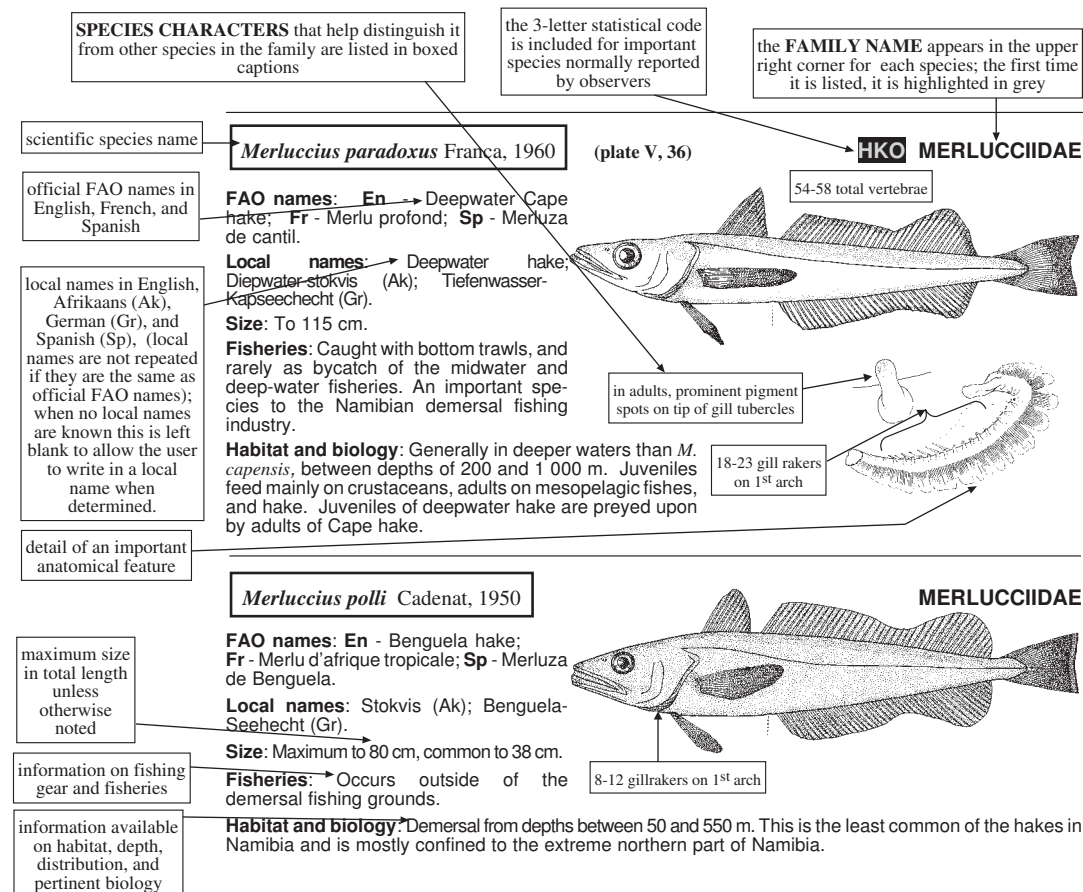
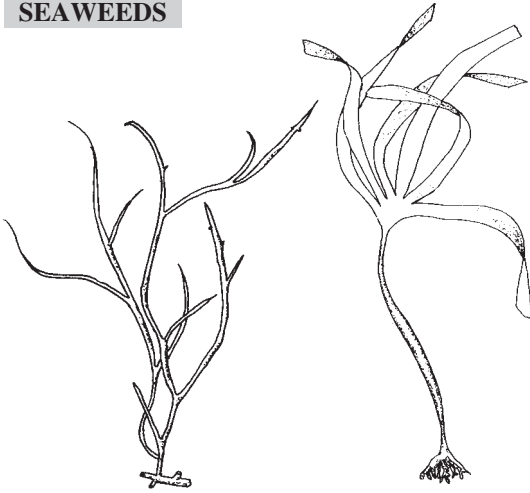


Fig. 12 The "Guide to Species"

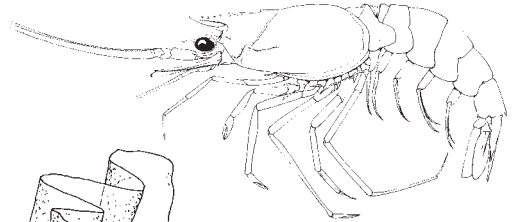
A PICTORIAL INDEX TO DIVISIONS ORDERS OR FAMILIES

SEAWEEDS

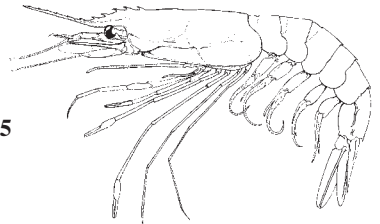


RHODOPHYTA p. 23 **PHAEOPHYTA** p. 25 **CHLOROPHYTA** p. 25

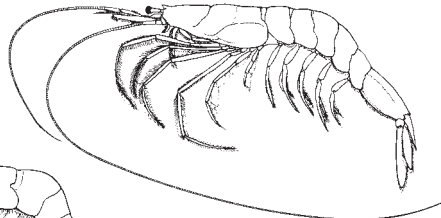
SHRIMPS AND PRAWNS



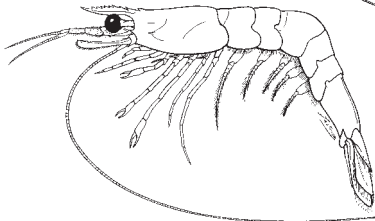
SOLENCERIDAE p. 30



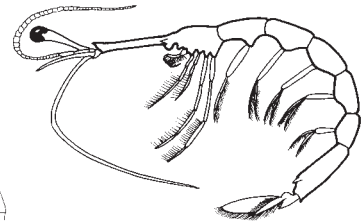
ARISTEIDAE p. 30



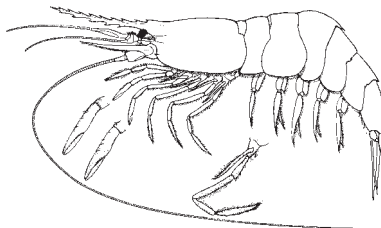
SERGESTIDAE p. 27



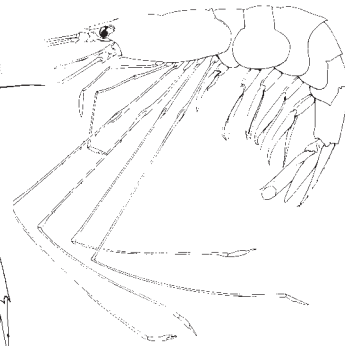
PENAEIDAE p. 31



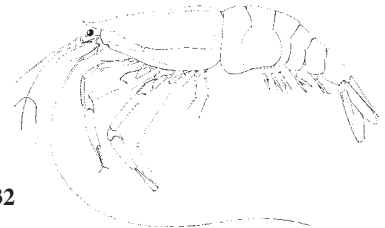
LUCIFERIDAE p. 27



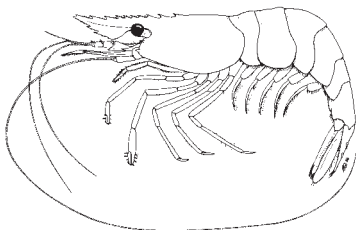
OPLOPHORIDAE p. 32



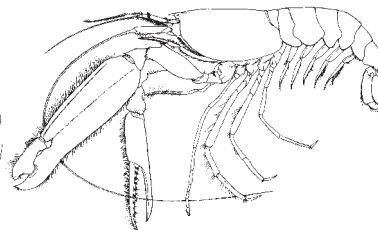
NEMATOCARCINIDAE p. 32



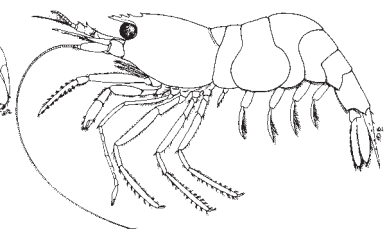
PASIPHAEIDAE p. 33



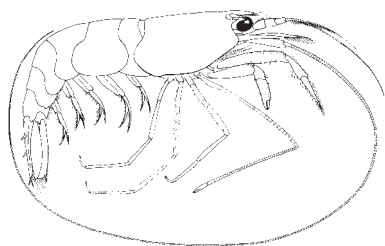
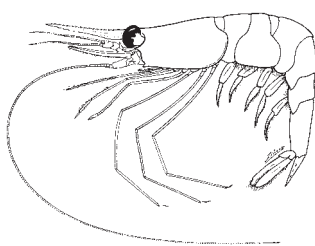
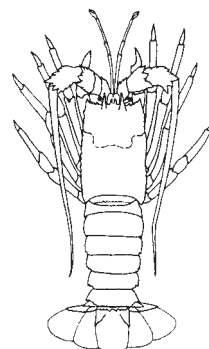
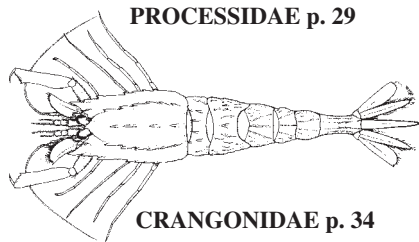
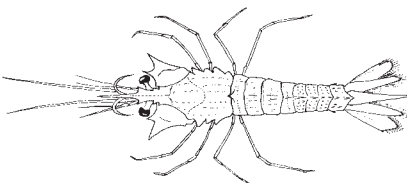
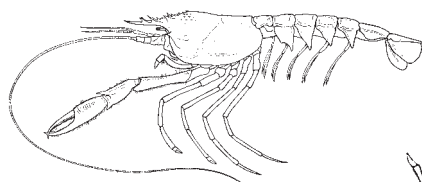
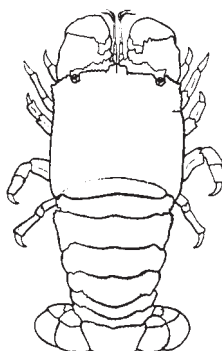
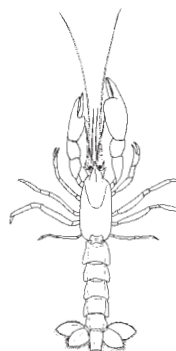
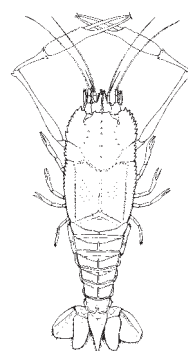
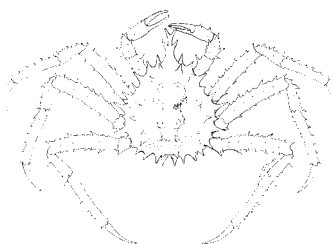
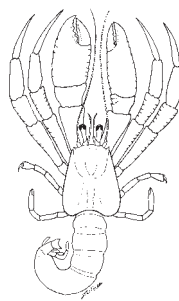
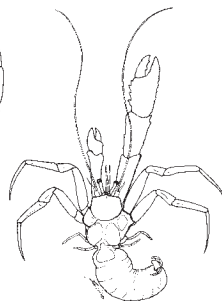
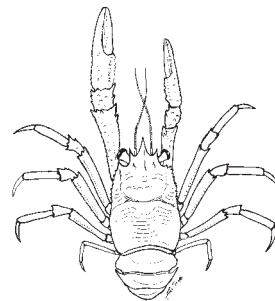
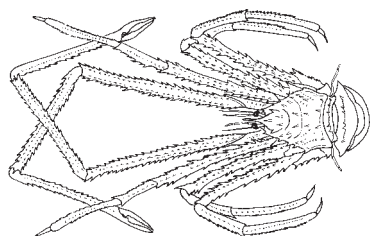
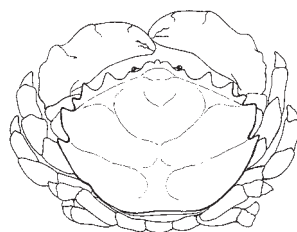
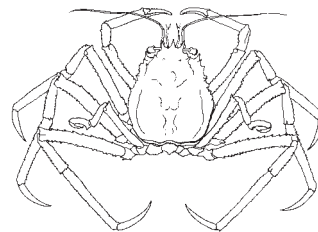
PALAEEMONIDAE p. 33

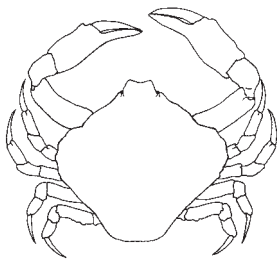
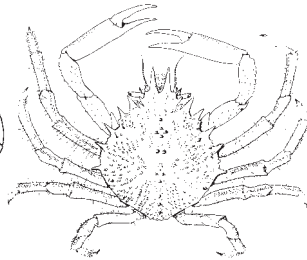
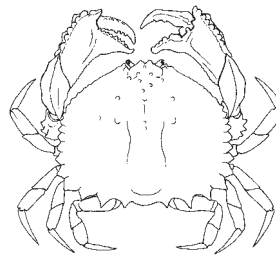
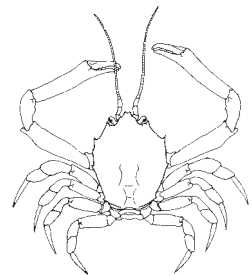
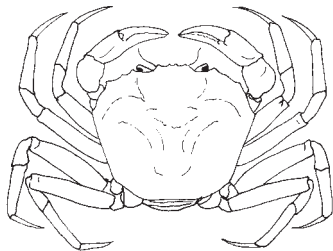
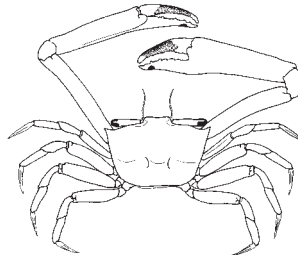
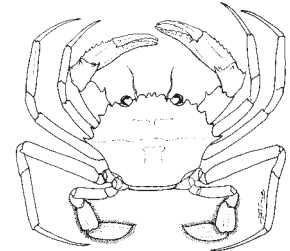
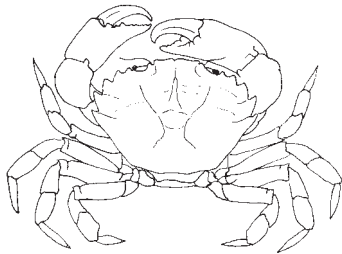
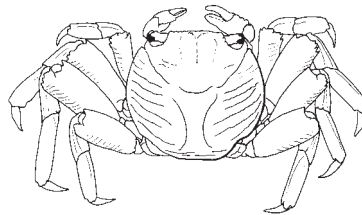
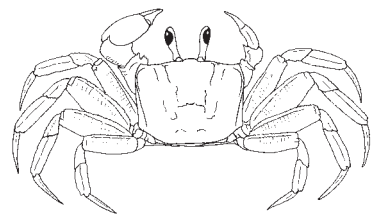
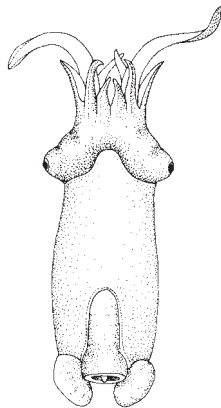
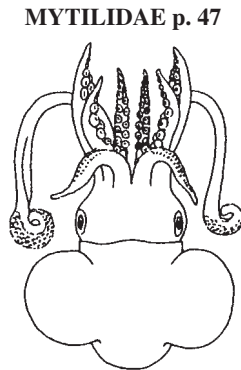
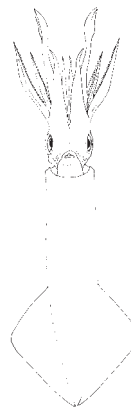


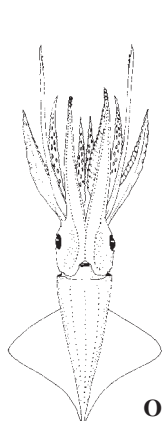
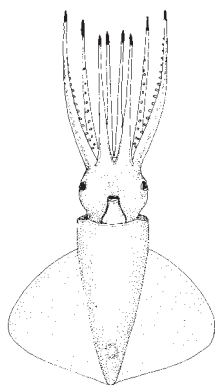
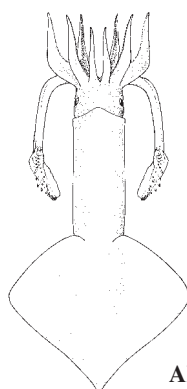
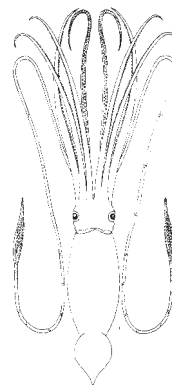
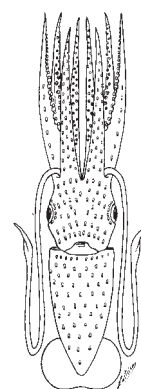
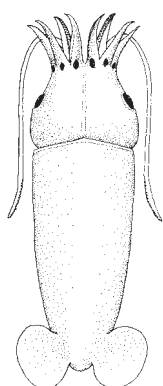
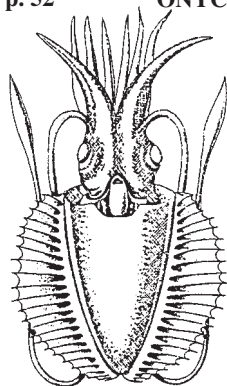
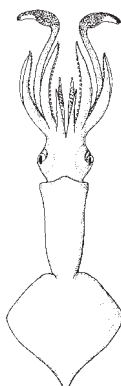
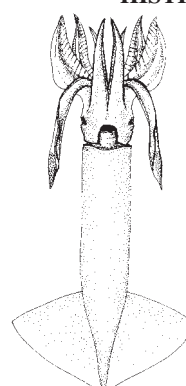
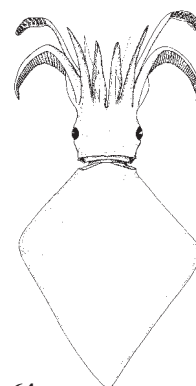
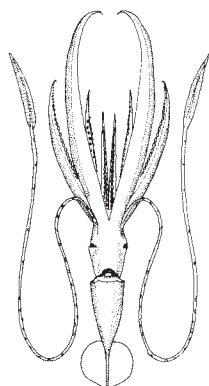
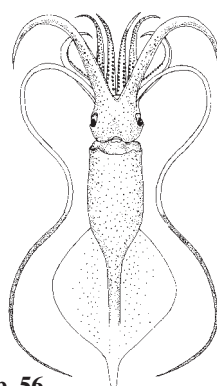
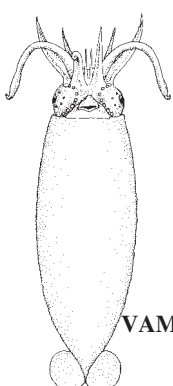
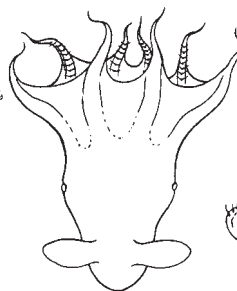
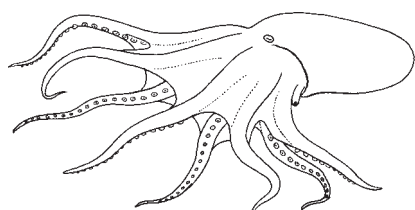
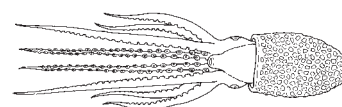
ALPHEIDAE p. 29

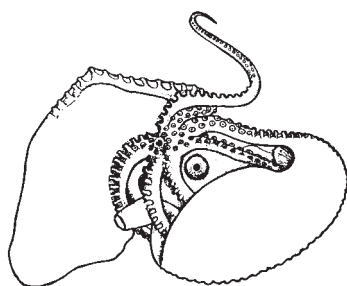
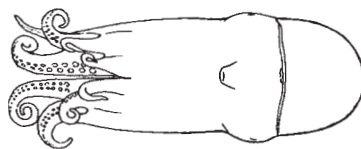
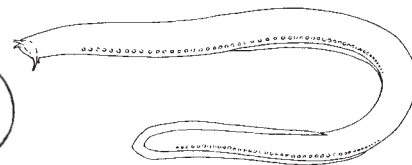
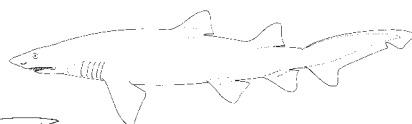
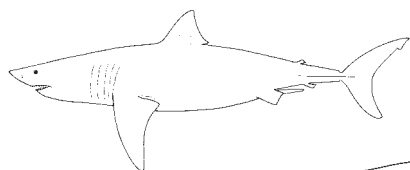
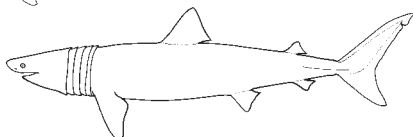
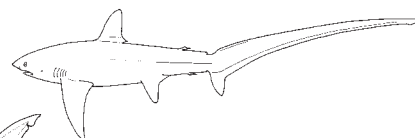
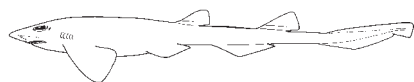
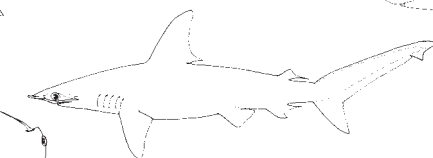
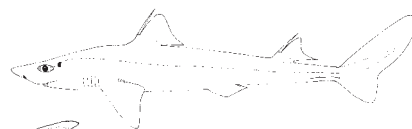
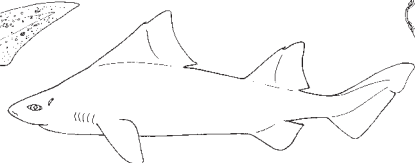
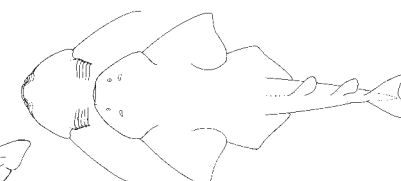


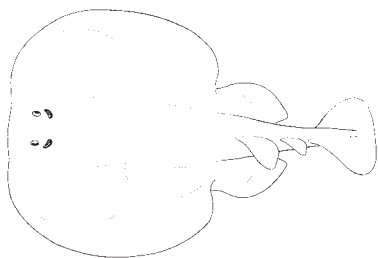
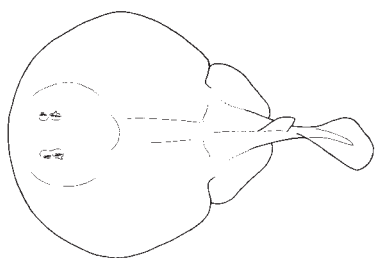
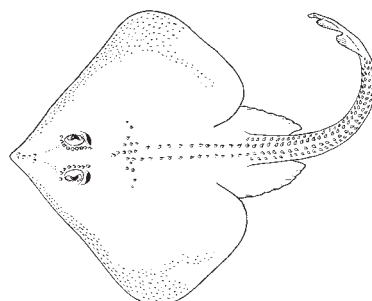
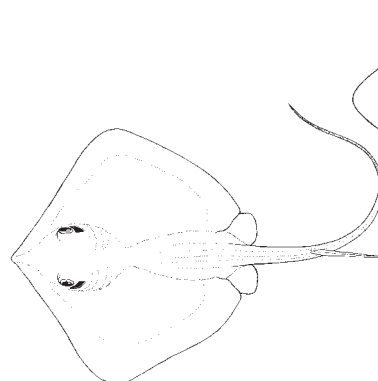
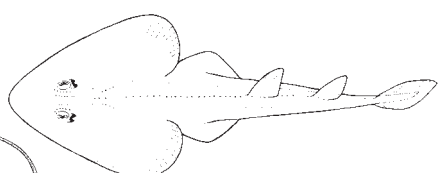
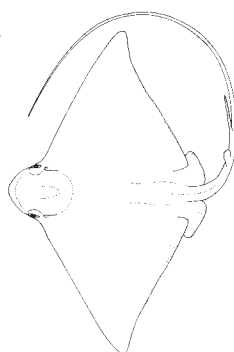
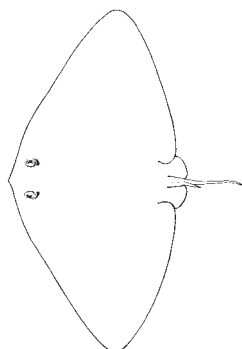
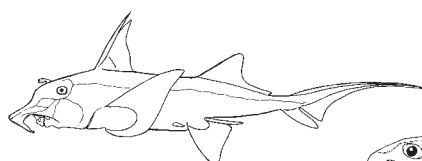
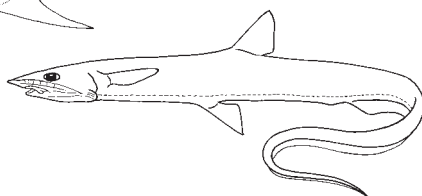
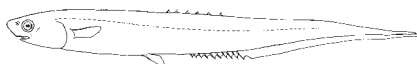
HIPPOLYTIDAE p. 29

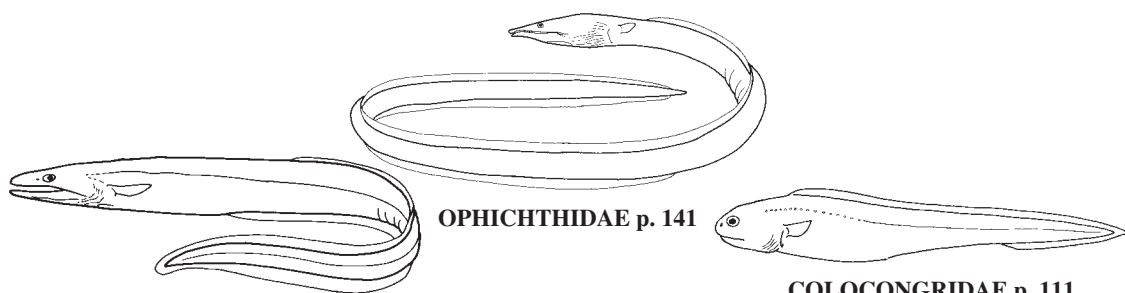
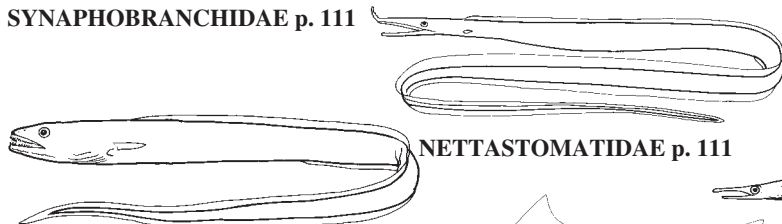
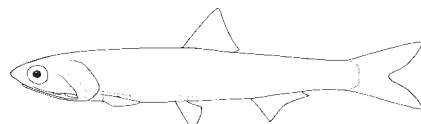
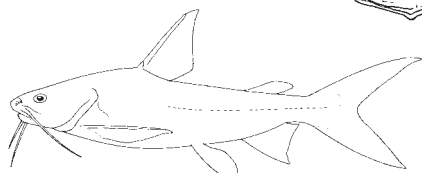
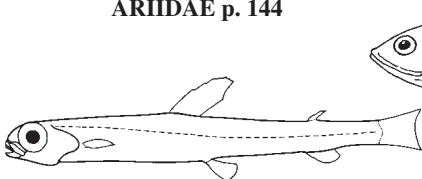
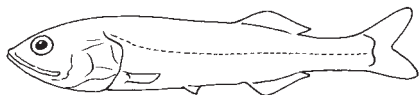
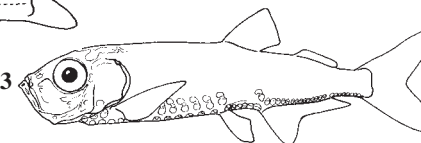
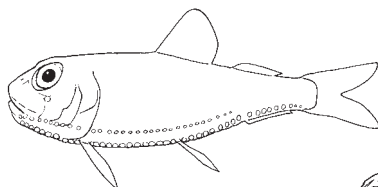
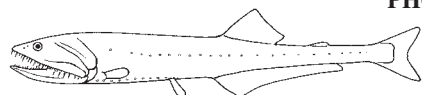
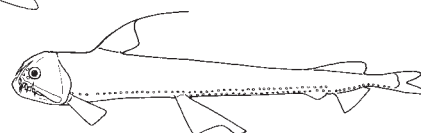
LOBSTERS**PROCESSIDAE p. 29****PANDALIDAE p. 33****PALINURIDAE p. 37****CRANGONIDAE p. 34****GLYPHOCRANGONIDAE p. 29****NEPHROPIDAE p. 38****CALLIANASSIDAE p. 36****SCYLLARIDAE p. 38****AXIIDAE p. 36****POLYCHELIDAE p. 36****CRABS****LITHODIDAE p. 44****DIOGENIDAE p. 40****PARAPAGURIDAE p. 40****GALATHEIDAE p. 40****CHIROSTYLIDAE p. 40****DROMIIDAE p. 41****HOMOLIDAE p. 44**

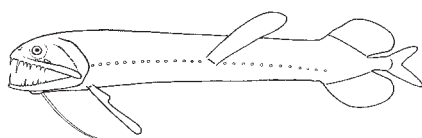
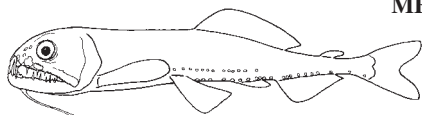
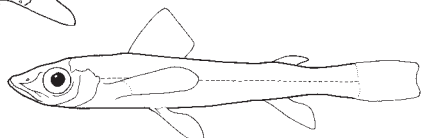
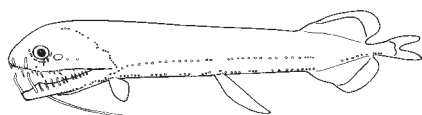
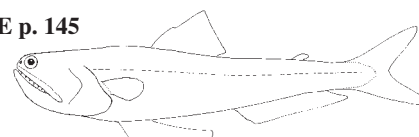
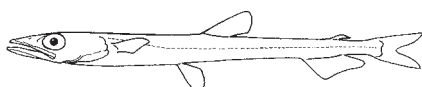
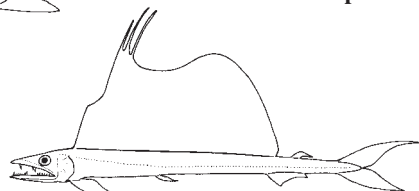
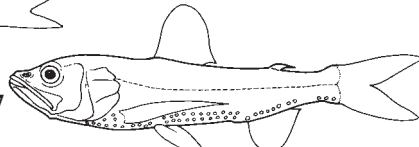
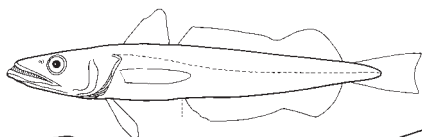
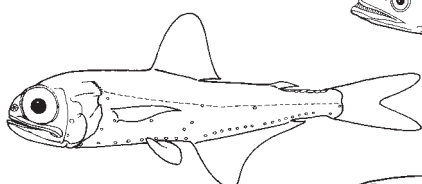
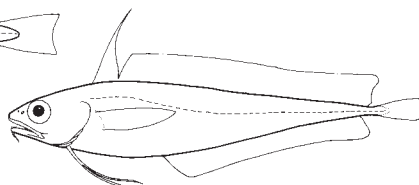
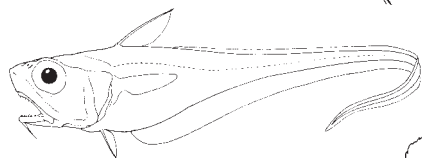
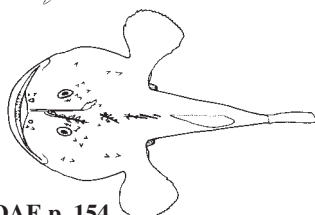
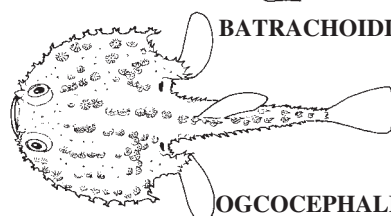
**LEUCOSIDAE p. 41****MAJIDAE p. 45****CALAPPIDAE p. 45****CORYSITIDAE p. 42****GERYONIDAE p. 45****GONEPLACIDAE p. 42****PORTUNIDAE p. 46****XANTHIDAE p. 43****GRAPSIDAE p. 46****OCYPODIDAE p. 43****BIVALVES AND GASTROPODS****PATELLIDAE p. 48****CEPHALOPODS****SPIRULIDAE p. 51****SEPIIDAE p. 59****SEPIOLIDAE p. 51****LOLIGINIDAE p. 61****LYCOTEUTHIDAE p. 52**

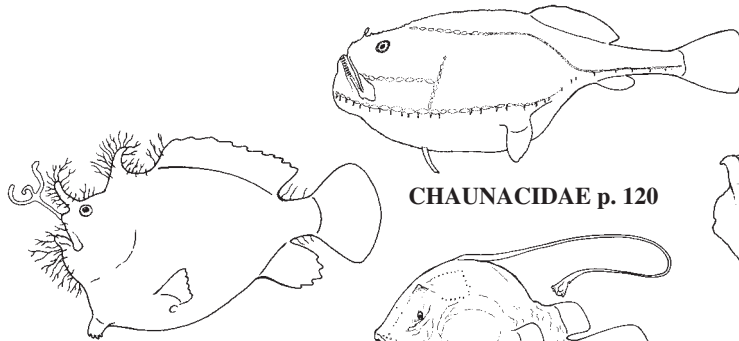
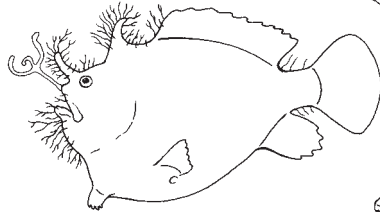
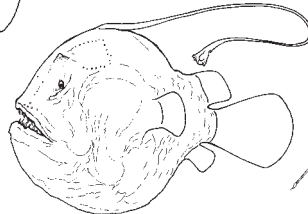
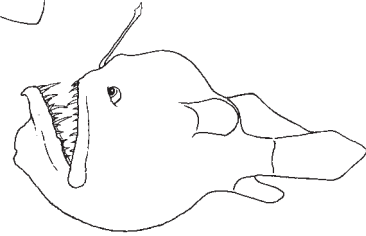
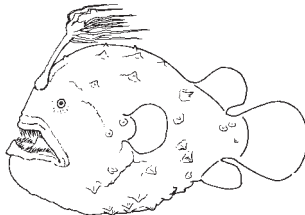
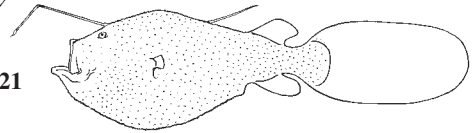
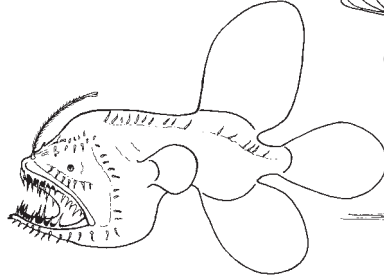
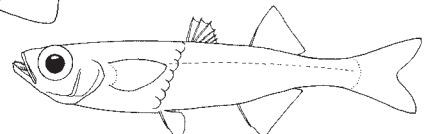
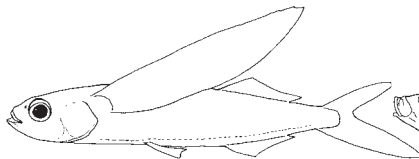
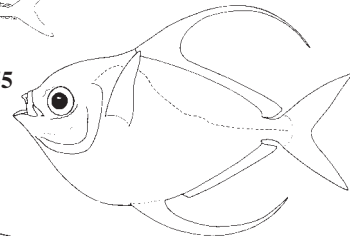
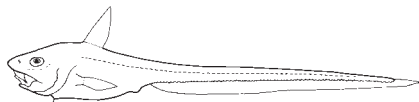
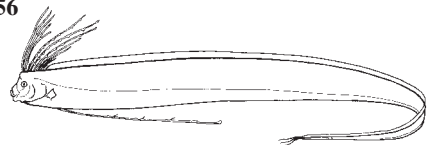
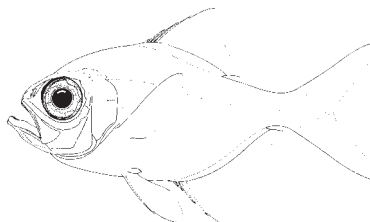
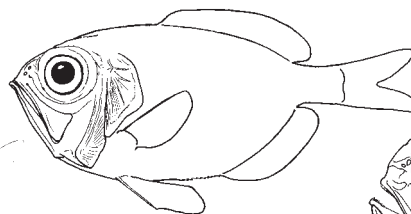
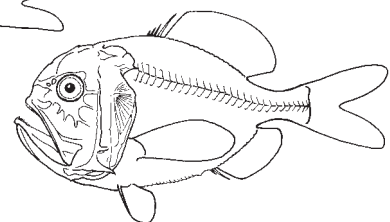
**OCTOPOTEUTHIDAE** p. 53**ENOPLOTEUTHIDAE** p. 52**ONYCHOTEUTHIDAE** p. 62**ARCHITEUTHIDAE** p. 53**HISTIOTEUTHIDAE** p. 63**BATHYTEUTHIDAE** p. 54**CTENOPTERYGIDAE** p. 54**BRACHYTEUTHIDAE** p. 64**OMMASTREPHIDAE** p. 64**THYSANOTEUTHIDAE** p. 67**CHIROTEUTHIDAE** p. 56**MASTIGOTEUTHIDAE** p. 56**CRANCHIIDAE** p. 56**VAMPYROTEUTHIDAE** p. 57**OPISTHOTEUTHIDAE** p. 57**VITRELEDONELLIDAE** p. 57**OCTOPODIDAE** p. 67**OCYTHOIDAE** p. 58

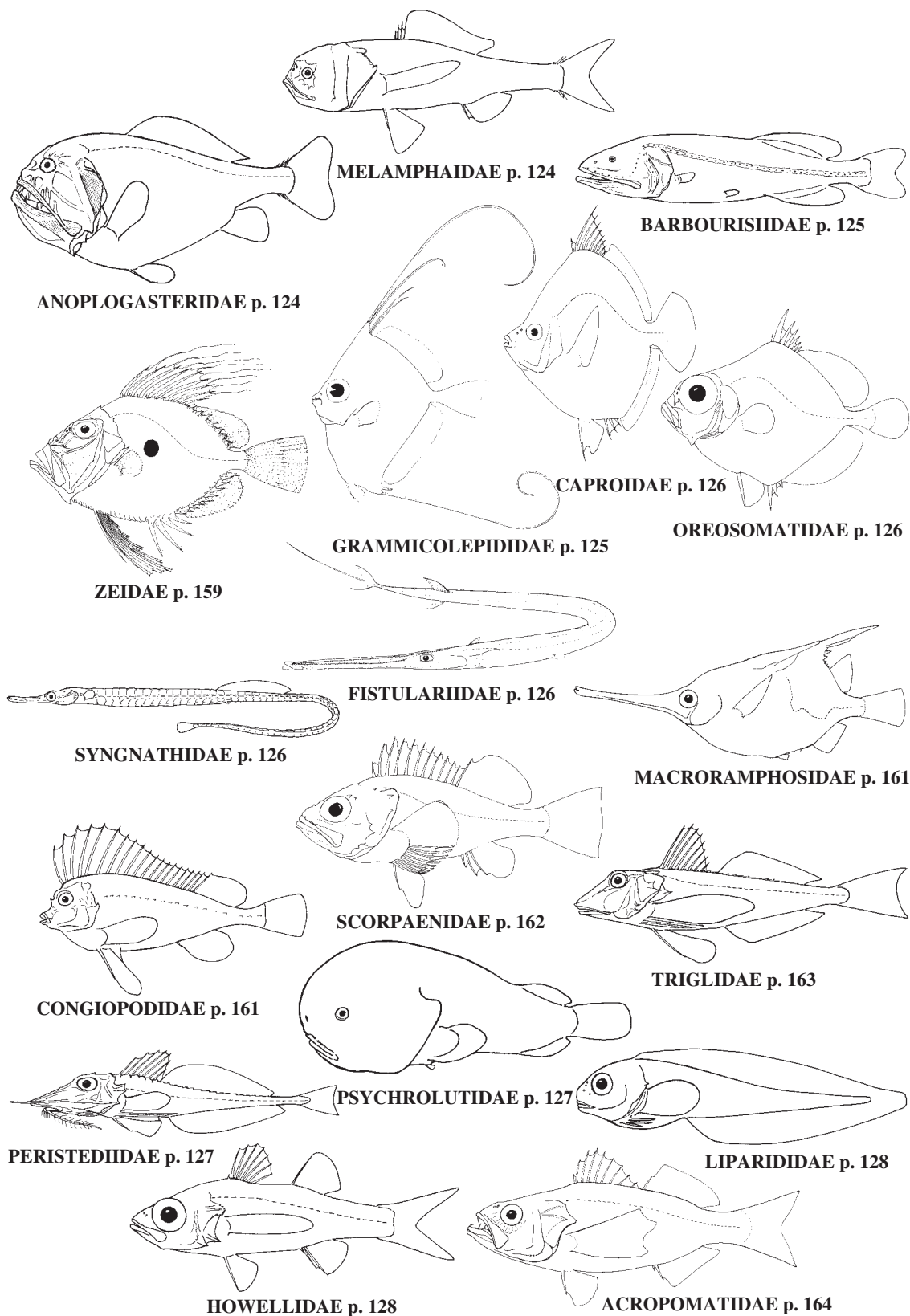
JAWLESS FISHES**ARGONAUTIDAE p. 58****ALLOPOSIDAE p. 58****MYXINIDAE p. 69****SHARKS****HEXANCHIDAE p. 76****CHLAMYDOSELACHIDAE p. 77****ODONTASPIDIDAE p. 77****LAMNIDAE p. 77****CETORHINIDAE p. 73****ALOPIIDAE p. 78****SCYLIIORHINIDAE p. 78****HEMIGALEIDAE p. 81****CARCHARHINIDAE p. 81****TRIAKIDAE p. 80****SQUALIDAE p. 82****SPHYRNIDAE p. 74****ECHINORHINIDAE p. 88****OXYNOTIDAE p. 88****SQUATINIDAE p. 88**

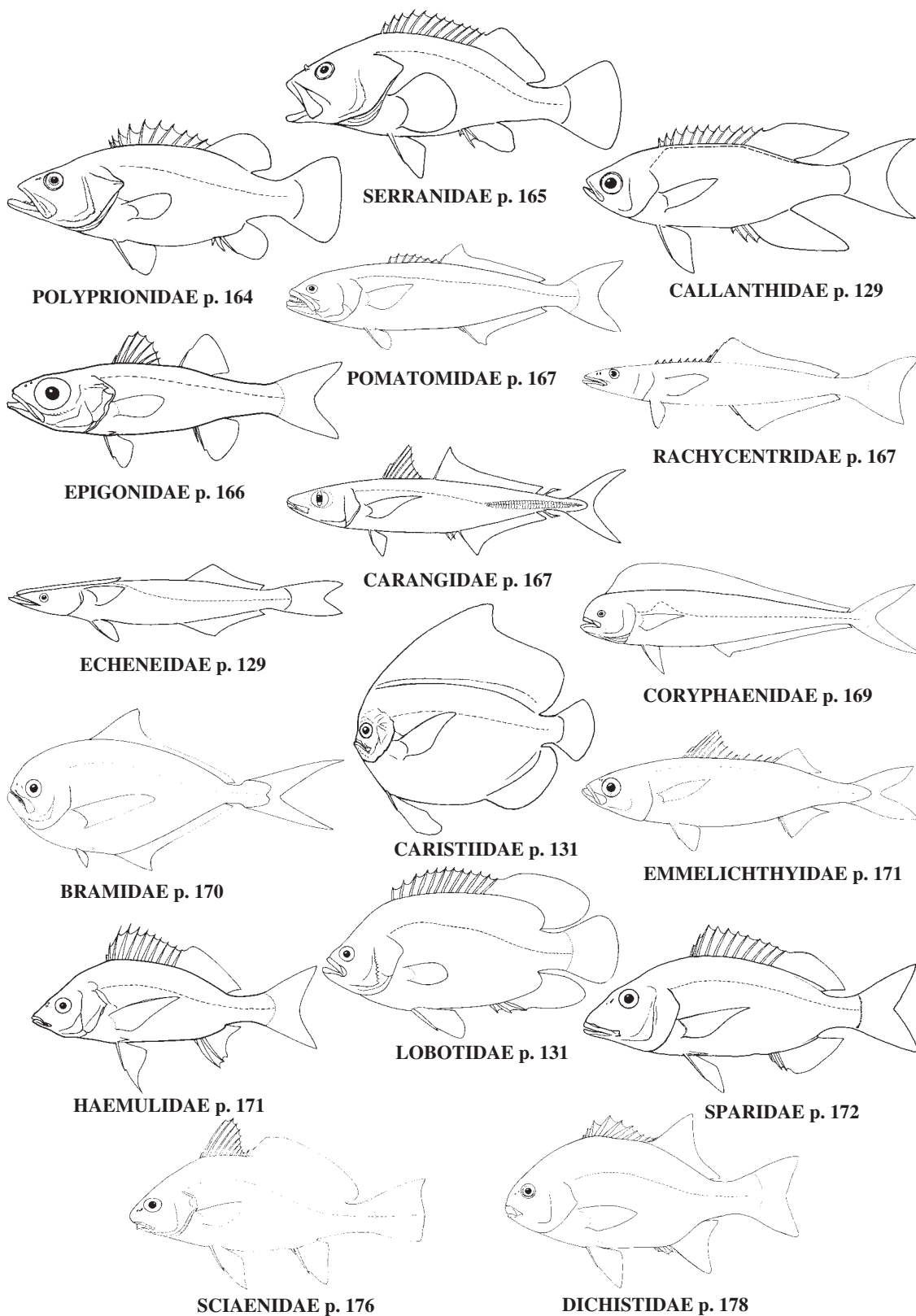
RAYS**TORPEDINIDAE p. 92****NARKIDAE p. 92****RAJIDAE p. 93****DASYATIDAE p. 98****RHINOBATIDAE p. 90****MYLIOBATIDAE p. 99****GYMNURIDAE p. 99****CHIMAERAS****CALLORHYNCHIDAE p. 101****CHIMAERIDAE p. 101****RHINOCHIMAERIDAE p. 102****BONY FISHES****ALBULIDAE p. 141****HALOSAURIDAE p. 110****NOTACANTHIDAE p. 141**

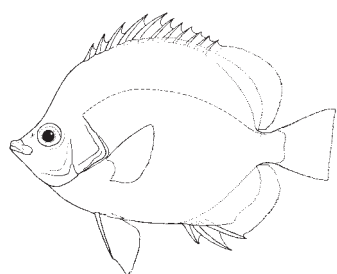
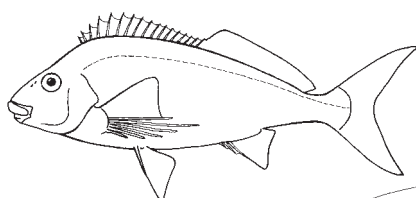
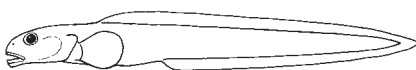
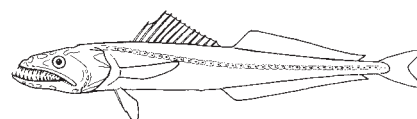
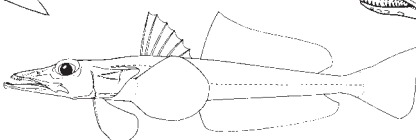
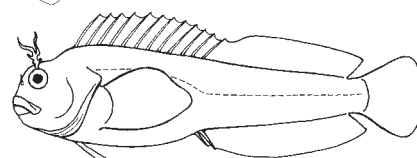
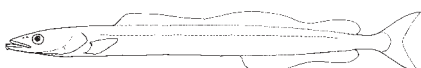
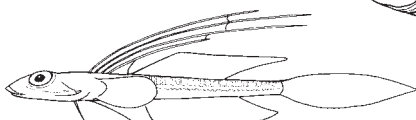
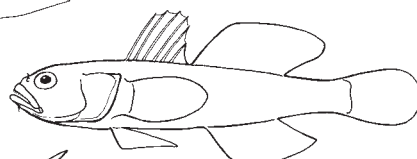
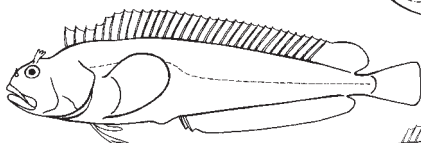
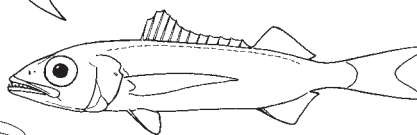
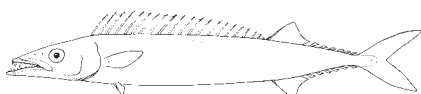
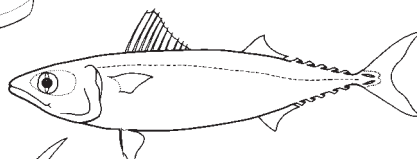
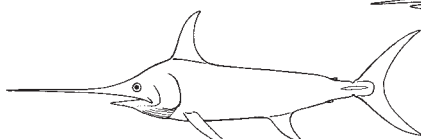
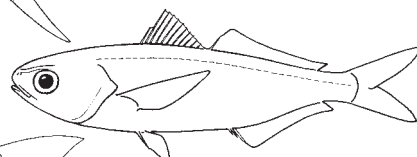
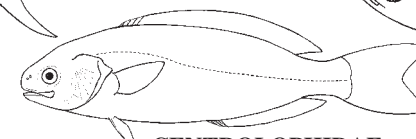
**OPHICHTHIDAE p. 141****SYNAPHOBRANCHIDAE p. 111****COLOCONGRIDAE p. 111****NETTASTOMATIDAE p. 111****CONGRIDAE p. 142****CLUPEIDAE p. 142****DERICHTHYIDAE p. 111****NEMICHTHYIDAE p. 112****ENGRAULIDAE p. 143****ARIIDAE p. 144****ALEPOCEPHALIDAE p. 144****BATHYLAGIDAE p. 113****MICROSTOMATIDAE p. 113****PLATYROCTIDAE p. 113****STERNOPTYCHIDAE p. 114****PHOSICHTHYIDAE p. 114****GONOSTOMATIDAE p. 114****CHAULIODONTIDAE p. 115****STOMIIDAE p. 115**

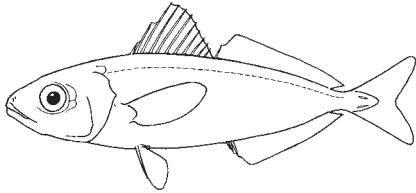
**MELANOSTOMIIDAE** p. 115**ASTRONESTHIDAE** p. 115**IDIACANTHIDAE** p. 115**CHLOROPHTHALMIDAE** p. 145**MALACOSTEIDAE** p. 115**SYNODONTIDAE** p. 145**PARALEPIDIDAE** p. 116**NOTOSUDIDAE** p. 116**ALEPISAUROIDAE** p. 116**SCOPELARCHIDAE** p. 117**EVERMANNELLIDAE** p. 117**NEOSCOPELIDAE** p. 117**MERLUCCIIDAE** p. 147**MYCTOPHIDAE** p. 145**MORIDAE** p. 148**OPHIDIIDAE** p. 152**MACROURIDAE** p. 149**BATRACHOIDIDAE** p. 153**LOPHIIDAE** p. 154**OGCOCEPHALIDAE** p. 120

**CHAUNACIDAE p. 120****ANTENNARIIDAE p. 120****DICERATIIDAE p. 121****MELANOCETIDAE p. 120****HIMANTOLOPHIDAE p. 121****GOBIESOCIDAE p. 122****CERATIIDAE p. 121****CAULOPHYRIDAE p. 121****SCOMBERESOCIDAE p. 155****ATHERINIDAE p. 154****EXOCOETIDAE p. 155****TRACHIPTERIDAE p. 156****LAMPRIDAE p. 156****ATELEOPODIDAE p. 157****REGALECIDAE p. 123****BERYCIDAE p. 157****DIRETMIDAE p. 157****TRACHICHTHYIDAE p. 158**

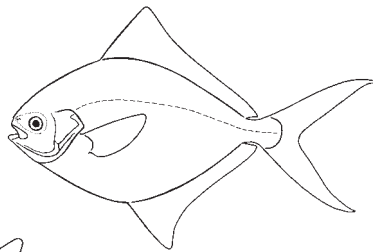




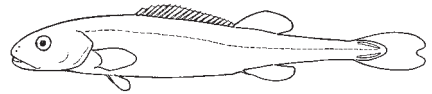
**CHAETODONTIDAE** p. 133**CHEILODACTYLIDAE** p. 178**MUGILIDAE** p. 179**SPHRYRAENIDAE** p. 133**ZOARCIDAE** p. 134**CHIASMODONTIDAE** p. 134**URANOSCOPIDAE** p. 134**PERCOPHIDAE** p. 134**BLENNIIDAE** p. 135**AMMODYTIDAE** p. 180**CALLIONYMIDAE** p. 180**GOBIIDAE** p. 180**CLINIDAE** p. 136**LUVARIDAE** p. 136**SCOMBROLABRACIDAE** p. 136**GEMPYLIDAE** p. 180**TRICHIURIDAE** p. 183**SCOMBRIDAE** p. 184**XIPHIIDAE** p. 187**ISTIOPHORIDAE** p. 187**NOMEIDAE** p. 190**CENTROLOPHIDAE** p. 188



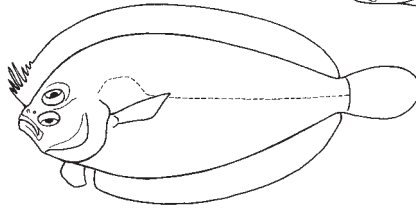
ARIOMMATIDAE p. 138



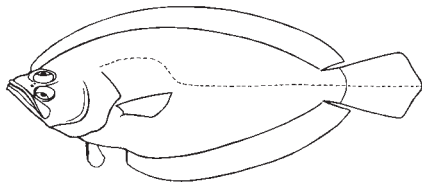
STROMATEIDAE p. 191



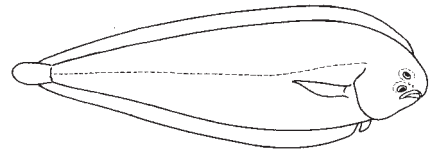
TETRAGONURIDAE p. 191



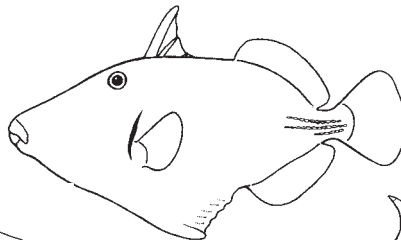
BOTHIDAE p. 191



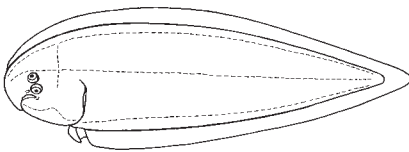
CITHARIDAE p. 139



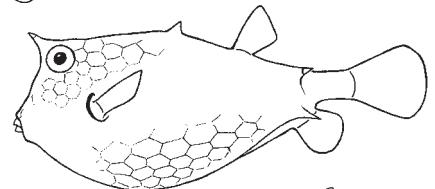
SOLEIDAE p. 193



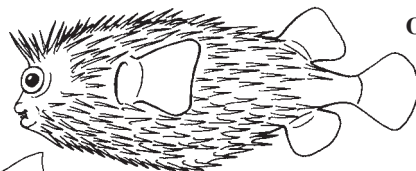
BALISTIDAE p. 140



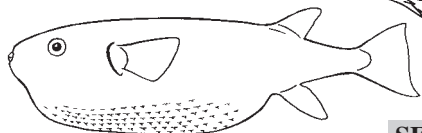
CYNOGLOSSIDAE p. 194



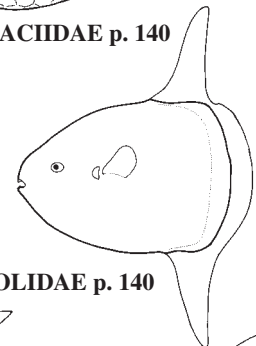
OSTRACIIDAE p. 140



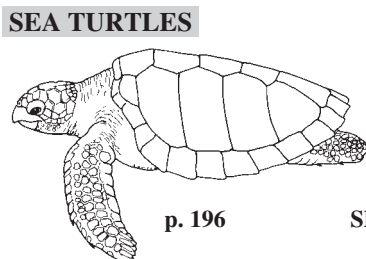
DIODONTIDAE p. 140



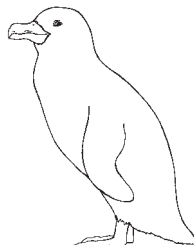
TETRAODONTIDAE p. 195

SEABIRDS

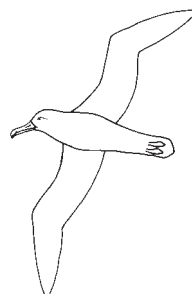
MOLIDAE p. 140



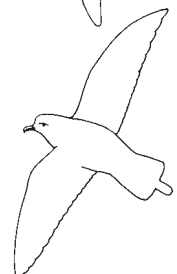
p. 196

SEA TURTLES

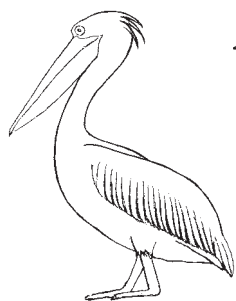
SPHENISCIIDAE p. 200



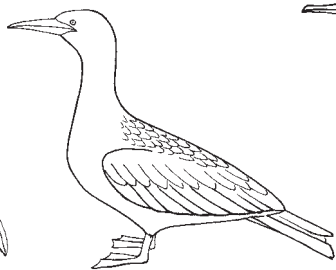
DIOMEDEIDAE p. 200



PROCELLARIIDAE p. 201



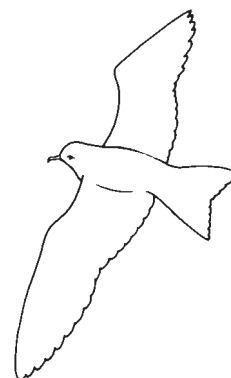
PELECANIDAE p. 203



SULIDAE p. 203

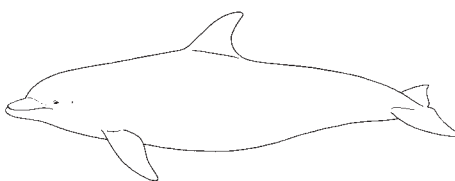


PHALACROCORACIDAE p. 203



LARIDAE p. 205

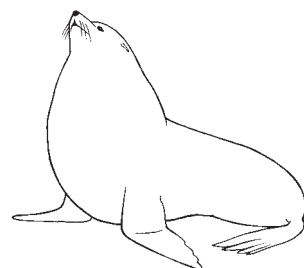
MARINE MAMMALS



ODONTOCETI p. 208



MYSTICETI p. 207



PINNIPEDIA p. 211

SEAWEEDS

Seaweeds are an important marine resource in Namibia. They are harvested worldwide primarily for the extraction of chemicals that serve as gelling and thickening agents in foods, and for media used in medical and microbiological work. These chemical agents are classified in 3 major categories: agar, carrageenans, and alginate. Agar is the most valuable of these compounds because it is the strongest known gelling agent, is essentially inert, and does not require additional chemicals in order to gel. Carrageenan is a general term for a group of closely related gelling compounds which are also important gelling and thickening agents but usually require the presence of ions of potassium or calcium in order to gel. Alginate is a general thickening, binding, and gelling agent that has a variety of uses in food, textile, and manufacturing industries. Aside from providing valuable gelling agents, seaweeds are also important for direct consumption by man, as an animal feed supplement, as food for abalone farms, and as fertilizer.

There are numerous species of seaweeds and algae in Namibia. At least 9 species are of important present or potential use, and are presented here. They are included in 3 major categories of seaweeds: the red, brown, and green algae. These 3 divisions are usually distinguishable by the colour that their name suggests, except red algae can be either red, brown, yellow, or dark in colour.

Reproduction takes place in various ways, including sexual (gametes), asexual (spores), and vegetative propagation (e.g., fragmentation of thallus). The life cycle may entail 1, 2, or 3 generations that can be morphologically similar or dissimilar and sometimes alternating between macroscopic and microscopic.

TECHNICAL TERMS

Agarophyte - Agar producing seaweed.

Axis - Equivalent of stem or branch in terrestrial plants.

Dichotomous - Dividing into 2.

Distal - Away from point of attachment.

Frond - Equivalent to a terrestrial plant leaf.

Gametophyte - Sexually reproducing form that bears gametes.

Holdfast - An attachment organ.

Midrib - Thickened central portion of thallus.

Papillae - Soft gland or protuberance.

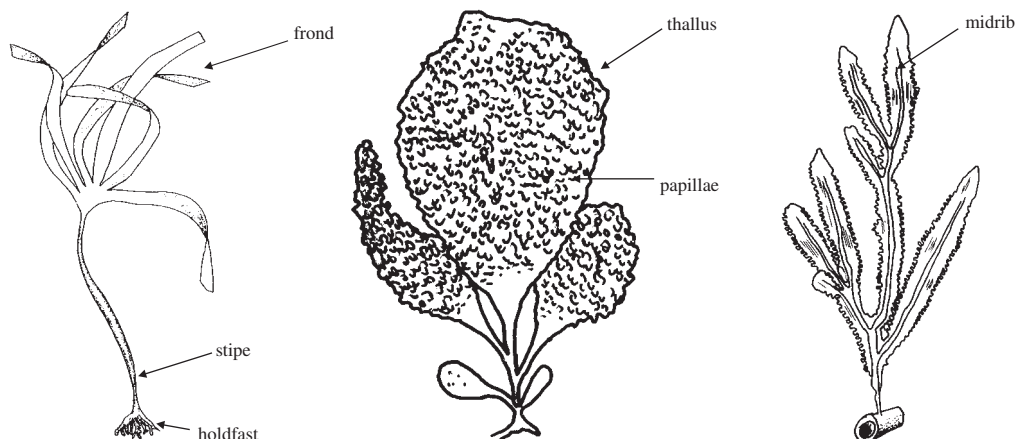
Proximal - Towards the point of attachment.

Sporophyte - Asexually reproducing form that bears spores.

Stipe - Equivalent to a trunk or stem in terrestrial plants.

Thallus - Plant body not differentiated into roots, stem, and leaves.

Tetrasporophyte - Third generation form of algae, bearing spores.



Division RHODOPHYTA - Red Algae

Gracilaria gracilis (Stackhouse) Steentoft, (1995)

FAO names: **En** - Warty gracilaria; **Fr** - Gracilaire commune; **Sp** - Gracilaria común.

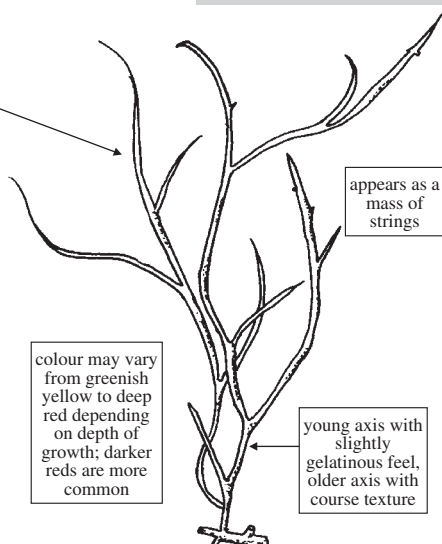
Local names: Sea grass.

Size: Up to 3 m long; axis up to 2 mm thick.

Utilization: Important source of agar. Exported raw dried, mostly from the Lüderitz area where production increased from 310 t dry weight in 1982 to over 1 500 t in 1988; in 1990, 1 033 t were produced. Harvested as beach cast; collection from beds prohibited due to ecological damage. Commercial mariculture around Lüderitz.

Habitat and biology: In Namibia, occurs mostly in Lüderitz Bay. Grows in sand and mud from depths of 2 to 11 m without specialized attachment organs (Molloy and Bolton, 1996). Aerial portions break free and are cast up on the beach. Life history consists of 3 phases; the gametophytes and sporophyte are macroscopic and identical, the third phase is microscopic. Often confused with closely related *Gracilariopsis* species which grow in the Walvis Bay and Swakopmund area.

GRACILARIACEAE

*Gigartina radula* (Esper) J. Agardh, 1851

FAO names: **En** - Tongue weed; **Fr** - Langue verruqueuse; **Sp** - Lengua verrucosa.

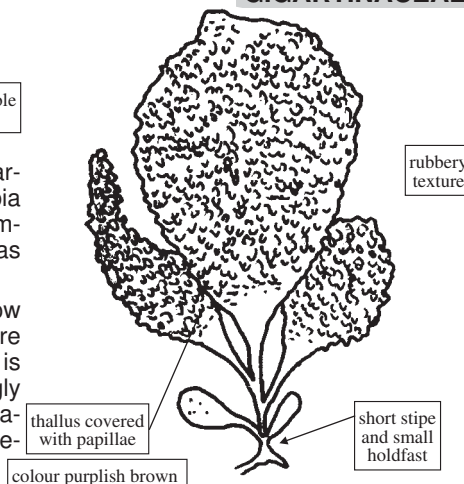
Local names:

Size: Usually not more than 15 cm long.

Utilization: Gigartinaceae produce carrageenans and are harvested worldwide. They have never been harvested in Namibia but there is a potential for both *G. radula* and *G. stiriata*. Recommended harvesting is by hand plucking as opposed to cutting, as recovery rate is faster.

Habitat and biology: Occurs in the intertidal zone from the low water mark to 0.5 m above this point. They grow on rocks, more prolifically in sheltered areas than exposed shores. Range is from the Orange River to Swakopmund, becoming increasingly more scarce towards the north of the range. Morphological variation is partially accounted for by the life cycle of which each species has 2 macroscopic and 1 microscopic phase.

GIGARTINACEAE

*Gigartina stiriata* (Turner) J. Agardh, 1851

FAO names: **En** - Fleshy moss; **Fr** - Mousse charnue; **Sp** - Musgo carnoso.

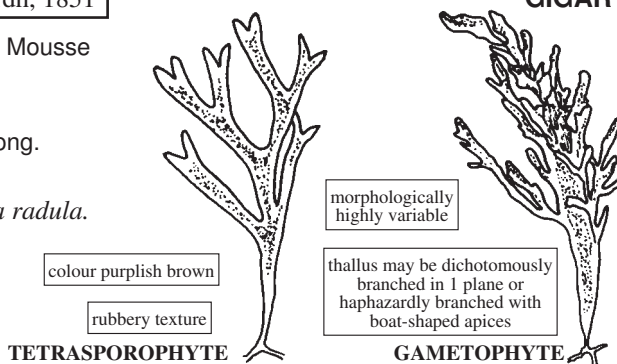
Local names:

Size: Usually not more than 15 cm long.

Utilization: See *Gigartina radula*.

Habitat and biology: See *Gigartina radula*.

GIGARTINACEAE



***Aeodes orbitosa* (Shur) Schmitz, 1894**

large, thin, ovoid to circular thallus

CRYPTONEMIACEAE

FAO names: **En** - Yellow skin; **Fr** - Peau jaune; **Sp** - Cáscara amarilla.

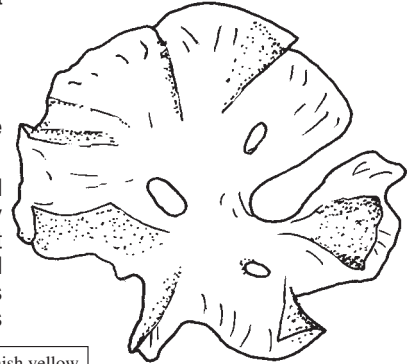
Local names:

slimy smooth texture

Size: Can attain a diameter of 1 to 1.5 m.

Utilization: *Aeodes* contains a carrageenan type colloid but to date has not been exploited anywhere in the world.

Habitat and biology: *Aeodes orbitosa* grows prolifically south of and around Lüderitz, but north of Ichaboe Island the species is very scarce, however it has been reported (Simons, 1976) to occur at Cape Frio. Though *A. orbitosa* grows on exposed and sheltered intertidal sites, largest plants grow in sheltered bays where thallus surface areas of up to 1 m² can be attained. On exposed shores plants tend to be small.



colour brownish yellow

no stipe and small holdfast

***Suhria vittata* (Linnaeus) J. Agardh, 1842**

FAO names: **En** - Red ribbons; **Fr** - Rubans rouges; **Sp** - Cintas rojas.

Local names: Red ribbons.

Size: Lengths of up to 70 cm can be attained.

Utilization: An agarophyte which has never been exploited though its agar yield is said to be satisfactory (Anderson, 1985). As the seaweed only grows amongst kelp beds it would be difficult to harvest.

Habitat and biology: Endemic to Southern Africa. Grows on the stipes of the kelps *Ecklonia maxima* and *Laminaria schinzii*, on the limpet *Patella compressa* (which is found on the stipes of *Ecklonia maxima*), and rarely, on subtidal rock. It occurs from the Orange River to an unknown northward range. Two identical macroscopic and 1 microscopic phase.

membranous with midrib

resembles red ribbons

GELIDIACEAE

margins of the thallus fringed with ramuli (small leaflets)

texture is smooth and slightly gelatinous

small holdfast attaches the plant from which the bare midrib arises (resembling a stipe)

colour varies from dark to light red

Porphyra capensis* (Kuetzing, 1843)*BANGIACEAE**

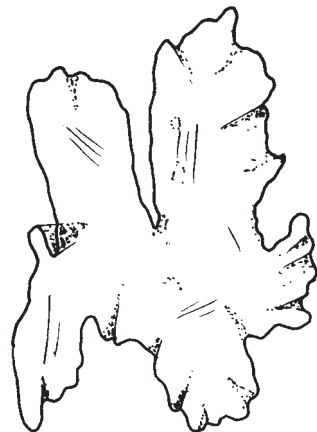
FAO names: **En** - Cape laver; **Fr** - Nori du Cap; **Sp** - Nori del Cabo.

Local names:

Size: Average 4 cm.

Utilization: *Porphyra* is not used in Namibia but species of the *Porphyra* genus are used in the Far East for human consumption, the product is called "nori" and is the basis of a multi-billion dollar industry.

Habitat and biology: On the Namibian coast *Porphyra capensis* occurs from the Orange River to the Kunene River. It grows highest up on the shore of any seaweed and forms an easily recognizable monospecific band. Reproduction involves 3 morphologically dissimilar phases. The macroscopic phase is gametophytic and the other phases are microscopic.



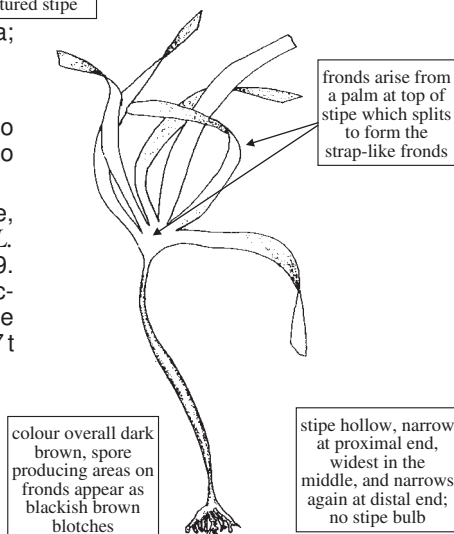
thin (1-2 cells thick) thallus of varying shape but generally ovoid

colour varies from dark purple-black to yellow; dark colours are more common

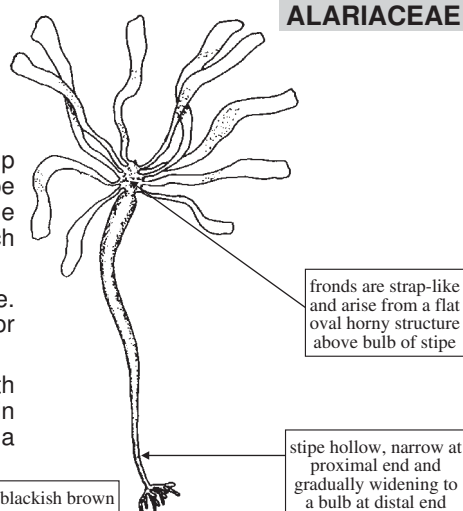
slippery texture and becomes crisp and brittle when dry

Division **PHAEOPHYTA - Brown Algae*****Laminaria pallida* var *schinzii*** Foslie, 1893

older plants may have a warty textured stipe

LAMINARIACEAE**FAO names:** **En** - Hollow oar weed; **Fr** - Laminaire du Benguela; **Sp** - Kombu de Benguela.**Local names:** Sea bamboo, Kelp.**Size:** Very large, made up of 3 components; the holdfast up to 30 cm diameter, the stipe up to 5 m long and the fronds up to 2.5 m long.**Utilization:** Species of *Laminaria* are widely used for alginate, pharmaceuticals, and human and animal food. In Namibia, *L. schinzii* was exported to Taiwan for food from 1987 to 1989. Beach cast is also collected for an animal feed supplement. Recommended harvest method is to cut the fronds 2 cm above the palm every 4 months. Recent experimental harvests yielded 137 t (wet weight) from the Lüderitz Peninsula.**Habitat and biology:** Endemic to southwestern Africa; in Namibia, from Orange River north to Rocky Point. Grows from the low water mark to a depth of about 25 m, in very dense stands of 12 plants/m² in shallow exposed sites. Sporophyte phase is large, macroscopic, and the gametophytes are microscopic.***Ecklonia maxima*** (Osbeck) Papenfuss, 1940**FAO names:** **En** - Sea bamboo; **Fr** - Bambou de mer; **Sp** - Bambú de mar.**Local names:** Sea bamboo, Kelp.**Size:** A very large seaweed composed of 3 parts; the holdfast up to 30 cm diameter which secures the plant to rock, the long stipe which can attain 5 m in length (on the Namibian coast), and the fronds which arise from the distal end of the stipe and may reach 2 m.**Utilization:** In South Africa used for plant fertilizer and alginate. In Namibia quantities are limited but beach cast is collected for use as an animal feed supplement.**Habitat and biology:** Occurs from the Orange River as far north as "Saddle Hill south" 80 kms north of Lüderitz. It is found in semi-exposed rocky bays and inlets from the low water mark to a depth of 7 m. Same life history as *Laminaria*.

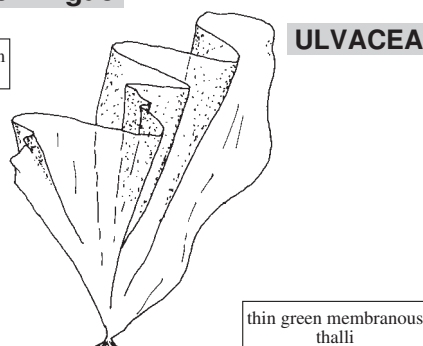
colour fronds usually yellowish brown while stipes, particularly in older plants are blackish brown

**ALARIACEAE*****Ulva* spp.** Linnaeus

morphology varies from ovoid to elongate

ULVACEAE**FAO names:** **En** - Sea lettuce; **Fr** - Laitue; **Sp** - Mantilla.**Local names:** Sea lettuce.**Size:** Average 3 cm.**Utilization:** Used for human consumption in the Far East. Not yet used in Namibia.**Habitat and biology:** Occurs from the Orange River to the Kunene River in the intertidal zone. Growth is more prolific in sheltered habitats and rock pools. One macroscopic phase and 2 free living microscopic phases.

delicate texture

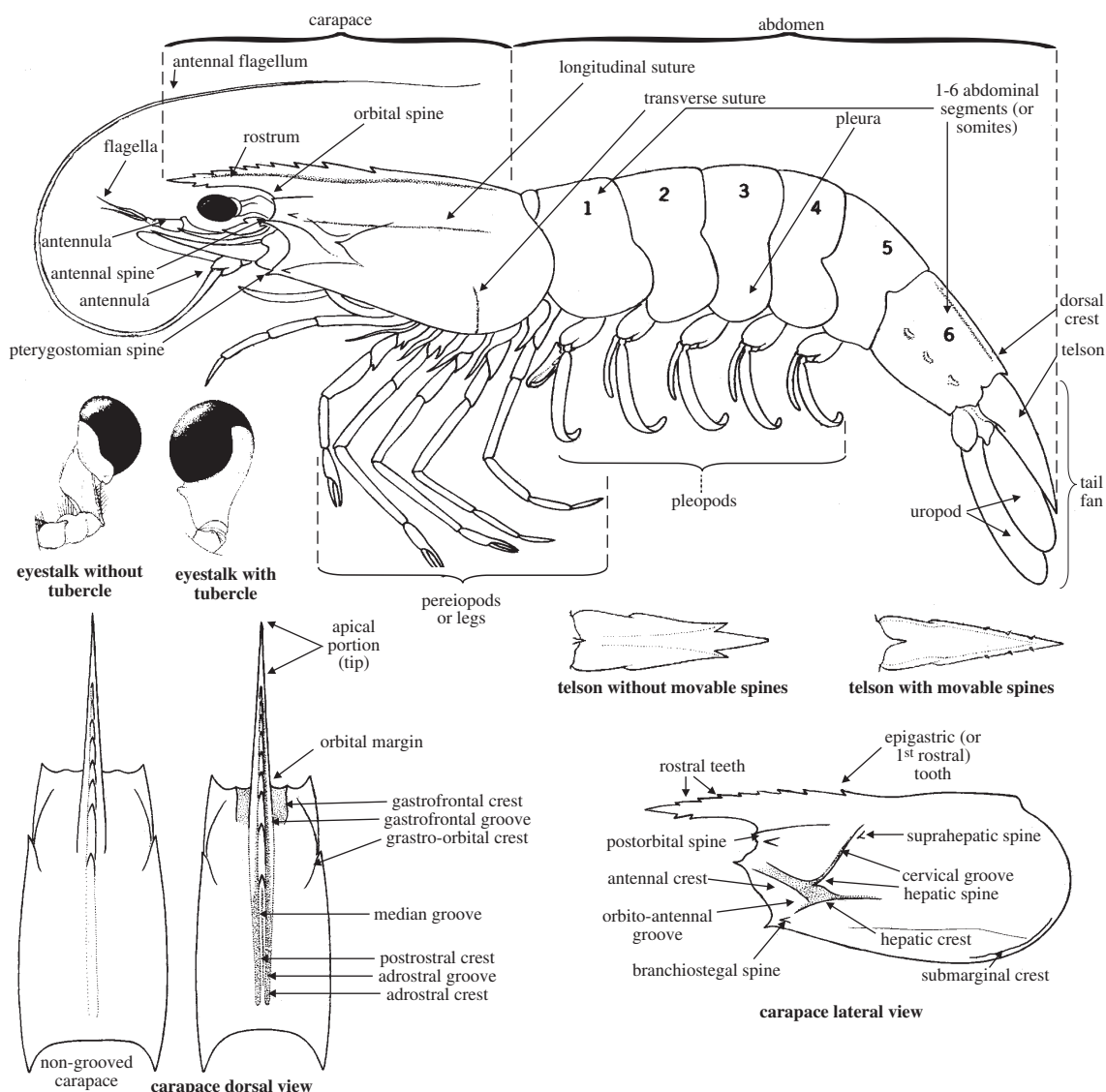


SHRIMPS AND PRAWNS

There are many species of shrimps that occur or are likely to occur in Namibia, but only a few of these have been identified as potentially exploitable in fisheries. Macpherson (1983,1991) listed 54 species of shrimps from Namibia from intensive bottom trawl and pelagic sampling of mostly offshore waters. We include 2 additional species in this guide from littoral and nearshore sublittoral waters, but we suspect that these habitats have not yet been adequately sampled. Therefore, the total of 56 species from Namibia listed here will likely increase in the future. In the guide to "Orders and Families" we include all 15 families of shrimps known to occur in Namibia. However, in the "Guide to Species" we include only the 16 species in 9 families considered to be of current or potential use in fisheries. The "Guide to Orders and Families" is more comprehensive so interested researchers can identify, at least to family level, almost all shrimps likely to occur in Namibia.

There are often discrepancies in the literature regarding the ranks used for classification of shrimps (and all crustaceans) above the species level. For example, the shrimps we include under the Infraorder Penaeidea are sometimes listed as a Superfamily or a Suborder. There are 2 major groups that are likely to occur in Namibia, and these are easily separable by observing the extent of overlap of the pleuron of the second abdominal segment.

TECHNICAL TERMS AND MEASUREMENTS



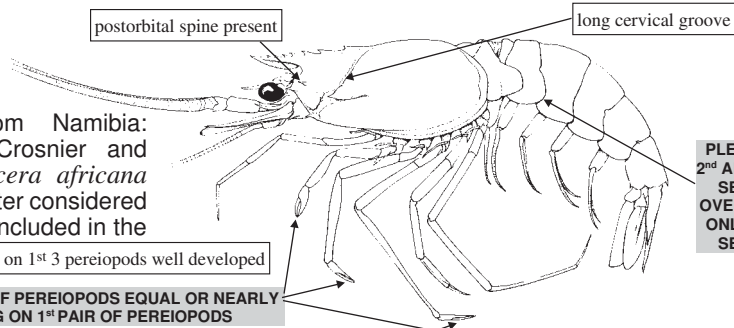
Infraorder **PENAEIDEA - Penaeid Shrimps**

Pleuron of second abdominal segment overlapping only the third segment; pincers of first 3 pairs of thoracic legs equal or nearly equal, sometimes first pair missing; eggs shed directly into the water. Five families from Namibia, 3 of these represented in the "Guide to Species."

SOLENOCERIDAE

Solenocerid shrimps

Two species listed from Namibia: *Hymenopenaeus chacei* Crosnier and Forest, 1969 and *Solenocera africana* Stebbing, 1917, only the latter considered of interest to fisheries and included in the "Guide to Species."



Page 30

PLEURON OF
2nd ABDOMINAL
SEGMENT
OVERLAPPING
ONLY THE 3rd
SEGMENT

PINCERS OF 1st 3 PAIRS OF PEREIOPODS EQUAL OR NEARLY
EQUAL, OR MISSING ON 1st PAIR OF PEREIOPODS

ARISTEIDAE

Aristeid shrimps

Five species listed from Namibia, 3 included in the "Guide to Species" and 2 others, *Gennadas brevirostris* Bouvier, 1905 and *G. clavicornis* de Man, 1907, are pelagic and generally occur in water deeper than 700 m and not considered important to fisheries.

no postorbital spine

eyestalk with
a tuberclepincers on 1st 3 pereopods
well developed

Page 30

PENAEIDAE

Penaeid shrimps

Three species included in the "Guide to Species." Two species demersal at depths down to 400 m; a third species pelagic at depths below 400m.

no postorbital spine

no tubercle on
eyestalkpincers on 1st 3 pereopods well developedshort cervical
groove

Page 31

SERGESTIDAE

Sergestid shrimps

Eight pelagic deep-water (deeper than 500 m) species listed by Macpherson (1991), none included in the "Guide to Species": *Sergestes arcticus* Krøyer, 1859, *S. armatus* Krøyer, 1855, *S. diapontius* Bate, 1881, *S. edwardsi* Krøyer, 1855, *S. pediformis* Crosnier and Forest, 1973, *Sergia grandis* (Sund, 1920), *S. potens* (Burkenroad, 1940), and *S. robusta* (Smith, 1882).

anterior part of carapace not elongate beyond
insertion of mouth appendicespincers on 2nd and
3rd pereopods
minute1st pair of pereopods
without pincers

LUCIFERIDAE

Luciferid shrimps

One species, not included in the "Guide to Species": *Lucifer faxoni* Borradaile, 1915.

1st pair of pereopods
without pincersanterior part of carapace
elongate beyond
insertion of mouth
appendicespincers on 2nd and 3rd pereopods minute

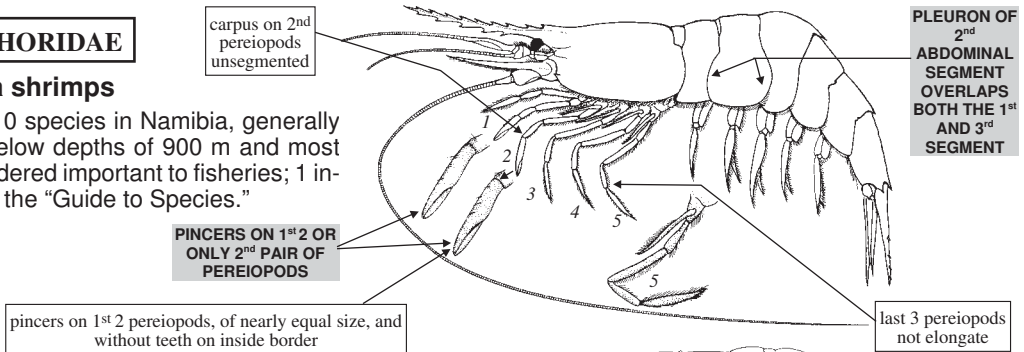
Infraorder **CARIDEA - Caridean Shrimps**

Pleuron of second abdominal segment overlaps both the first and third segments; pincers on first 2 or only second pair of thoracic legs; eggs carried by the female. Ten families from Namibia, 5 of these represented in the "Guide to Species."

OPLOPHORIDAE

Deepsea shrimps

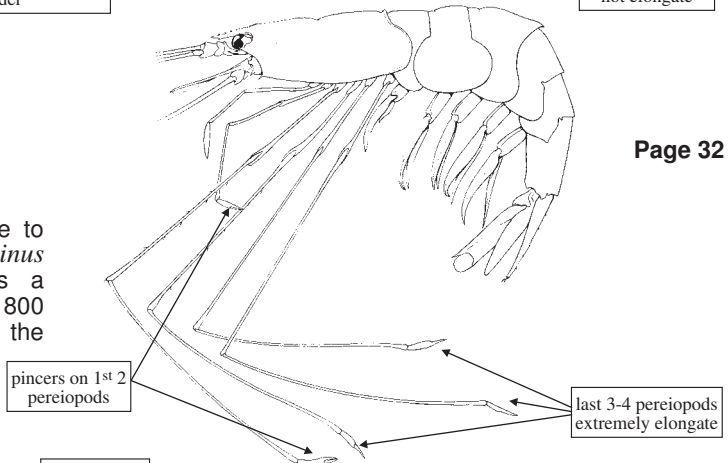
At least 10 species in Namibia, generally caught below depths of 900 m and most not considered important to fisheries; 1 included in the "Guide to Species."



NEMATOCARCINIDAE

Spider shrimps

One species included in the "Guide to Species" and another, *Nematocarcinus sigmoideus* Macpherson, 1984, is a deep-water (at depths greater than 800 m) benthic species, not included in the "Guide to Species."

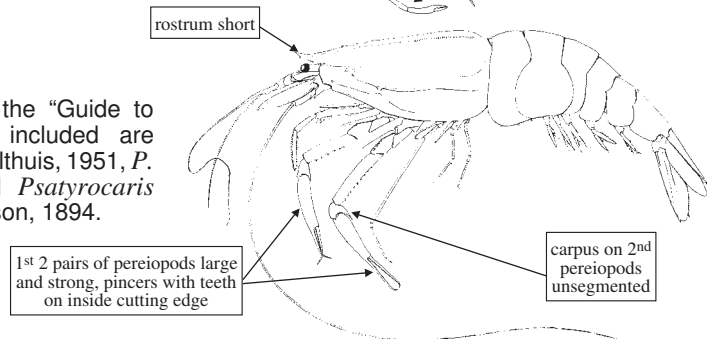


Page 32

PASIPHAEIDAE

Glass shrimps

One species included in the "Guide to Species"; 3 others not included are *Pasiphaea semispinosa* Holthuis, 1951, *P. tarda* Krøyer, 1845, and *Psatyrocaris infirma* Alcock and Anderson, 1894.

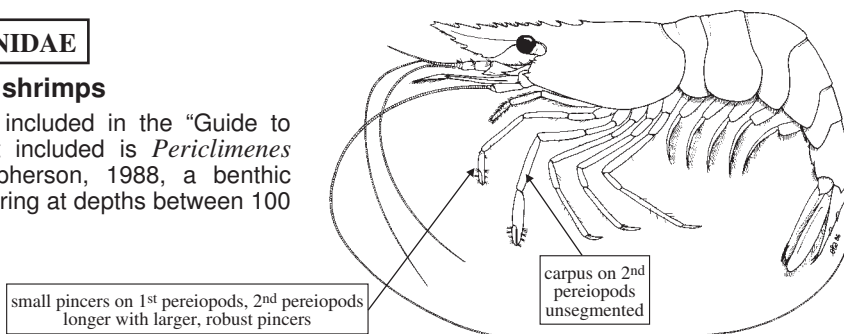


Page 33

PALAEEMONIDAE

Palaemonid shrimps

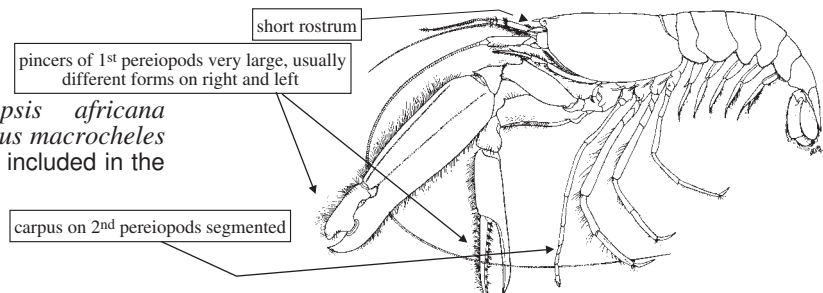
One species included in the "Guide to Species"; not included is *Periclimenes andresi* Macpherson, 1988, a benthic species occurring at depths between 100 and 200 m.



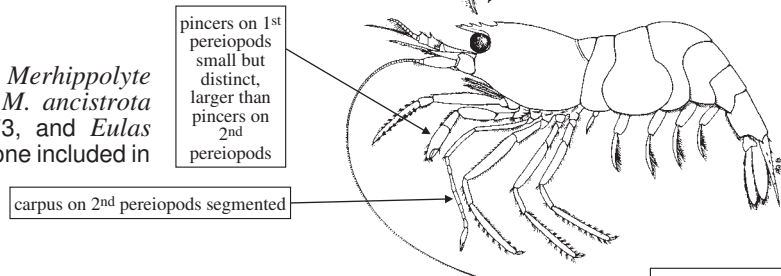
Page 33

ALPHEIDAE**Snapping shrimps**

Two species, *Alpheopsis africana* Holthuis, 1952 and *Alpheus macrocheles* (Hailstone, 1835), neither included in the "Guide to Species."

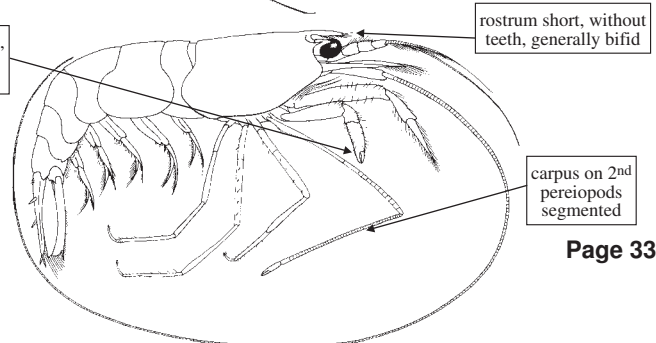
**HIPPOLYTIDAE****Cock shrimps**

Three species, *Merhippolyte agulhasensis* Bate, 1888, *M. ancistrola* Crosnier and Forest, 1973, and *Eulas ctenifer* (Barnard, 1950), none included in the "Guide to Species."

**PROCESSIDAE****Night shrimps**

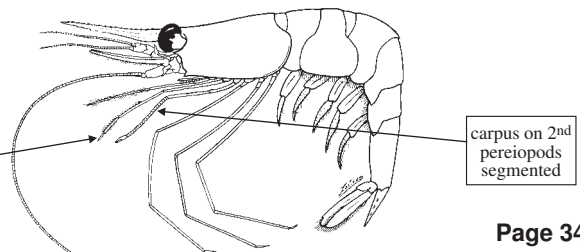
A single species, *Processa namibiensis* Macpherson, 1983, not included in the "Guide to Species."

right 1st pereopod with a pincer, the left 1st pereopod without a pincer

**PANDALIDAE****Pandalid shrimps**

Nine species, 4 included in the "Guide to Species"; not included are: *Pandalina modesta* (Bate, 1888), *P. profunda* Holthuis, 1946, *Plesionika carinata* (Holthuis, 1951), *P. heterocarpus* (Costa, 1871), *Stylopandalus richardi* (Coutière, 1905).

pincers on 1st 2 pereopods very small or absent

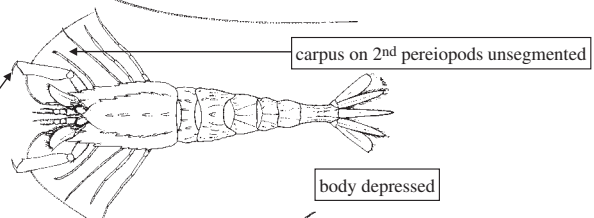


Page 33

CRANGONIDAE**Crangonid shrimps**

One species included in the "Guide to Species"; not included are *Pontophilus gracilis* Smith, 1882 and *Metacrangon jacqueti bellmarleyi* (Stebbing, 1914).

1st pair of pereopods very strong, with incomplete pincers lacking the fixed finger



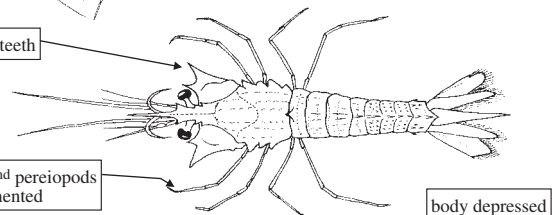
Page 34

GLYPHOCRANGONIDAE**Armoured shrimps**

One benthic deep-water (depths greater than 900 m) species, *Glyphocrangon longirostris* (Smith, 1882), not included in the "Guide to Species."

carapace with large teeth

carpus on 2nd pereopods segmented



body depressed

Solenocera africana Stebbing, 1917

(plate I, 1)

SOLENERIDAE

FAO names: **En** - African mud shrimp; **Fr** - Solenocère d'Afrique; **Sp** - Gamba de fango.

Local names:

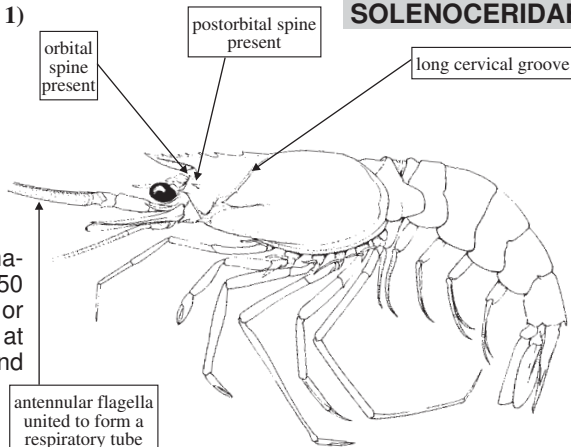
Size: To 14 cm total length.

Fisheries: One of the most abundant species caught with bottom trawls.

Habitat and biology: A demersal species, the immature individuals are found mainly between depths of 50 and 100 m while adults occur at depths of 300 m or more, on sand and mud bottoms. Mainly active at night; feeds on polychaetes, small crustaceans and molluscs.



cross section of antennular tube

*Aristeomorpha foliacea* (Risso, 1827)**ARISTEIDAE**

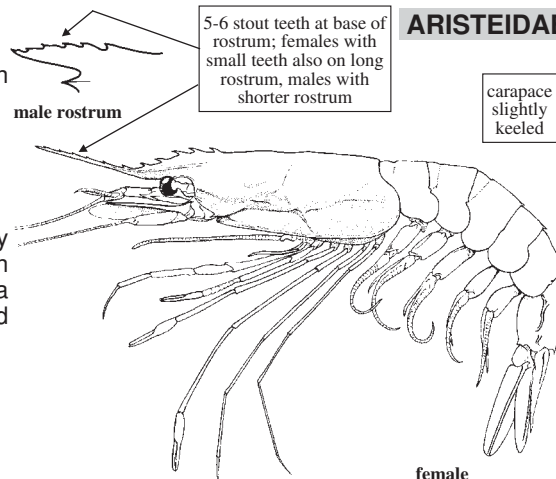
FAO names: **En** - Giant red shrimp; **Fr** - Gambon rouge; **Sp** - Gamba española.

Local names:

Size: To 22 cm total length.

Fisheries: Caught with bottom trawls.

Habitat and biology: A demersal species, on sandy and muddy bottoms and according to Macpherson (1991) found in the extreme southern part of Namibia on the continental slope between depths of 300 and 500 m.



female

Aristeus varidens Holthuis, 1952

(plate I, 2)

ARISTEIDAE

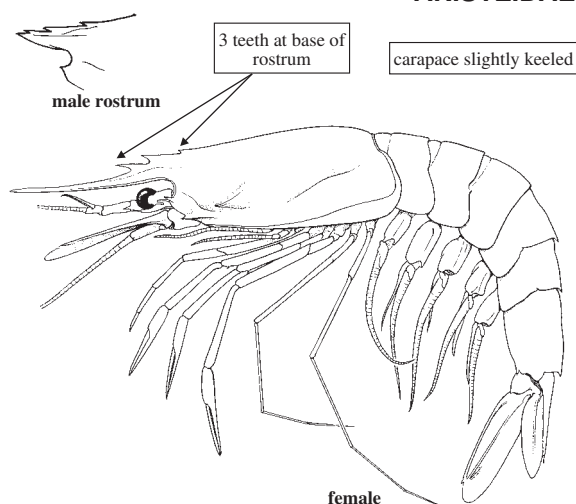
FAO names: **En** - Striped red shrimp; **Fr** - Gambon rayé; **Sp** - Alistado.

Local names: Tiefseegarnele (Gr).

Size: To 20 cm (females) and 12 cm (males) total length.

Fisheries: Caught with bottom trawls.

Habitat and biology: Adults occur between 400 and 824 m, young individuals at depths of 300 m, on muddy bottoms. Best trawl yields are obtained at night suggesting that this species burrows in the substrate by day. Life span is about 2 years. Found in the northern part of Namibia down to 24°S.



female

***Plesiopenaeus edwardsianus* (Johnson, 1867)**

carapace strongly keeled, with numerous conspicuous ridges

ARISTEIDAE

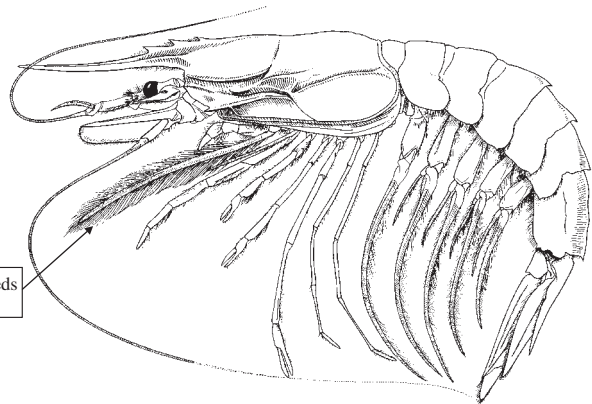
FAO names: **En** - Scarlet shrimp; **Fr** - Gambon écarlate; **Sp** - Gamba carabinero.

Local names: Atlantische rote Riesengarnele (Gr).

Size: To 33 cm (females) and 19 cm (males) total length.

Fisheries: Caught with bottom trawls.

Habitat and biology: Found on muddy bottoms of the continental slope, mostly between depths of 400 and 900 m, preferring temperatures between 5° and 8°C.

exopods of 2nd maxillipeds feathery

female (rostrum shorter in males)

***Funchalia woodwardi* Johnson, 1867**

(plate IX, 65)

carapace with lateral keels

PENAEIDAE

FAO names: **En** - Woodward's pelagic shrimp.

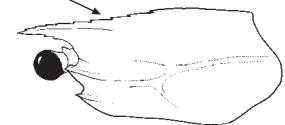
Local names:

Size: To around 16 cm total length.

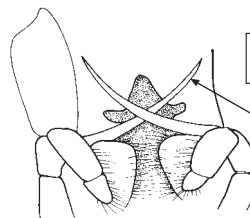
Fisheries: A medium-sized shrimp sometimes captured in fairly dense concentrations in midwater trawls. Probably the target of a previous shrimp fishery in southern Namibia and potentially important commercially.

Habitat and biology: A night active pelagic species typically occurring at depths below 500 m but can be found between the depths of 50 and 3 000 m; also captured by bottom trawls.

colour pinkish white with reddish margin of abdominal segments and reddish brown upper anterior portion of carapace



covered with short, almost invisible hairs



mandibles sickle-shaped

Macropetasma africana* (Balss, 1913)*PENAEIDAE**

FAO names: **En** - Swimming shrimp; **Fr** - Crevette nageuse; **Sp** - Camarón nadador.

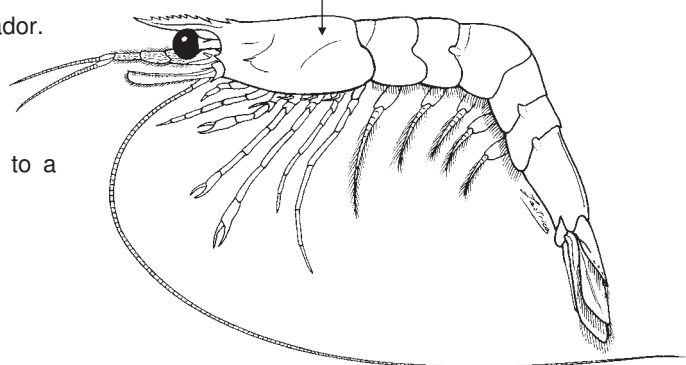
Local names: Surf shrimp.

Size: To 6.7 cm total length.

Fisheries: None at present.

Habitat and biology: A littoral species, to a depth of 30 m. Also in estuaries.

longitudinal suture on carapace absent



***Parapenaeus longirostris* (Lucas, 1846)**

(plate I, 3)

PENAEIDAE

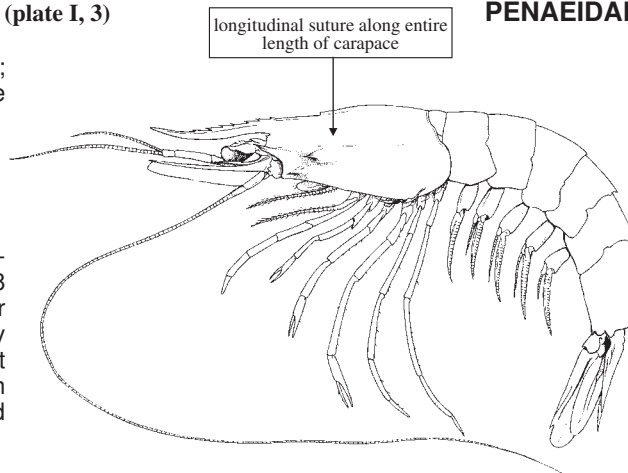
FAO names: **En** - Deepwater rose shrimp; **Fr** - Crevette rose du large; **Sp** - Camarón de altura.

Local names: Rosa Geißelgarnele (Gr).

Size: To 19 cm total length.

Fisheries: Caught with bottom trawls.

Habitat and biology: On sandy and muddy bottoms from 100 to 400 m and temperatures of 8 to 15°C; largest individuals are found in deeper waters. This species carries out lengthy daily and seasonal vertical migrations. Largest catches are taken during daytime. Feeds on clams, mysids, and small crangonids. Reported only from the extreme northern part of Namibia.

***AcanthePHYRA acanthitelsonis* Bate, 1888****OPLOPHORIDAE**

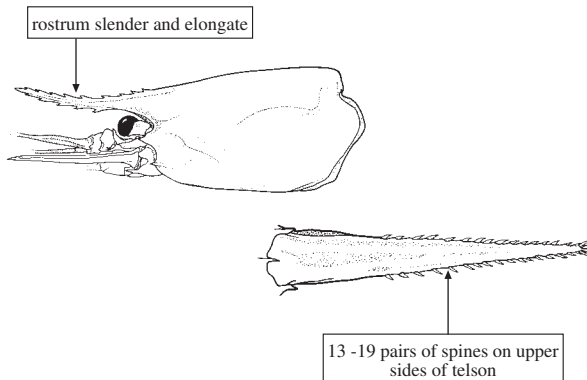
FAO names: **En** - Spinytailed deepsea pelagic shrimp.

Local names:

Size: To about 10 cm total length and 2.2 cm carapace length.

Fisheries: A somewhat common species with potential for increased commercial exploitation.

Habitat and biology: Pelagic, but also caught with bottom gear, usually at depths greater than 400 m; maximum depth reported to 3 383 m; commonly between 400 and 800 m in Namibia. Breeding most likely occurs around January.

***Nematocarcinus africanus* Crosnier and Forest, 1973****NEMATOCARCINIDAE**

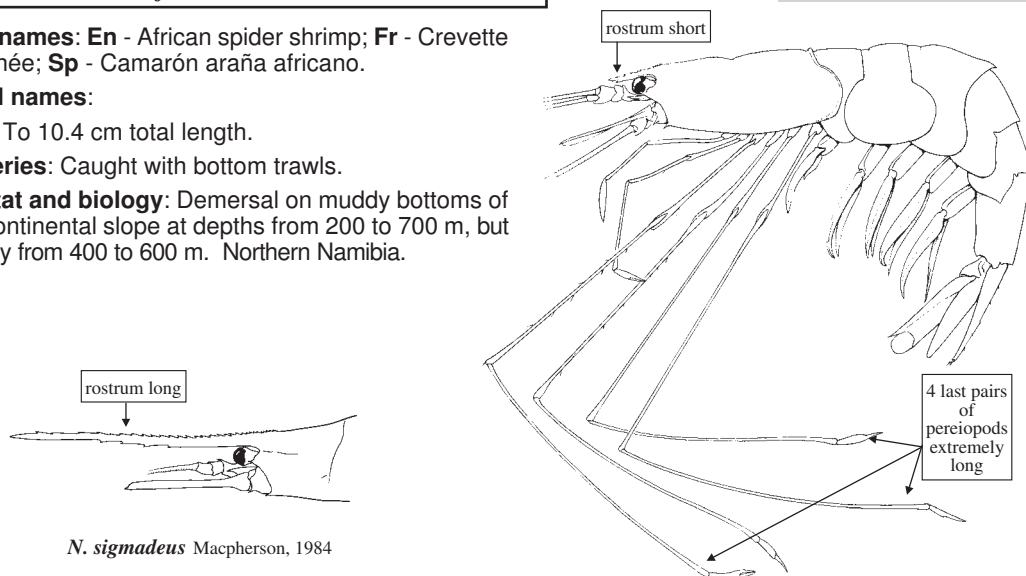
FAO names: **En** - African spider shrimp; **Fr** - Crevette araignée; **Sp** - Camarón araña africano.

Local names:

Size: To 10.4 cm total length.

Fisheries: Caught with bottom trawls.

Habitat and biology: Demersal on muddy bottoms of the continental slope at depths from 200 to 700 m, but usually from 400 to 600 m. Northern Namibia.



N. sigmadeus Macpherson, 1984

***Glyphus marsupialis* Filhol, 1884**

(plate I, 4)

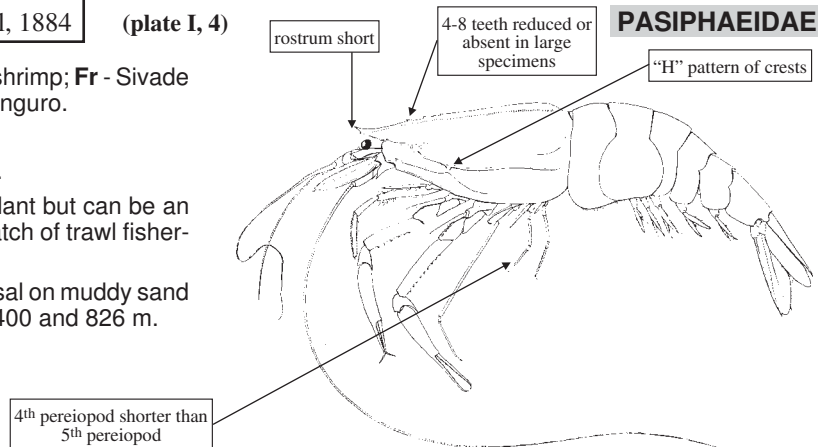
FAO names: **En** - Kangaroo shrimp; **Fr** - Sivade kangourou; **Sp** - Camarón canguro.

Local names:

Size: To 16.7 cm total length.

Fisheries: Not usually abundant but can be an important element in the bycatch of trawl fisheries.

Habitat and biology: Demersal on muddy sand bottoms, at depths between 400 and 826 m.

***Palaemon elegans* Rathke, 1837**

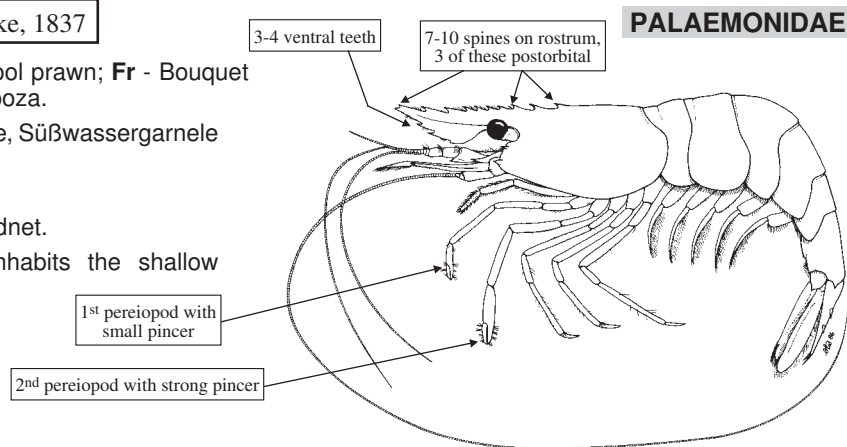
FAO names: **En** - Rockpool prawn; **Fr** - Bouquet flàque; **Sp** - Camarón de poza.

Local names: Felsengarnele, Süßwassergarnele (Gr).

Size: To 6 cm total length.

Fisheries: Caught by handnet.

Habitat and biology: Inhabits the shallow sublittoral zone.

***Chlorotocus crassicornis* (Costa, 1871)**

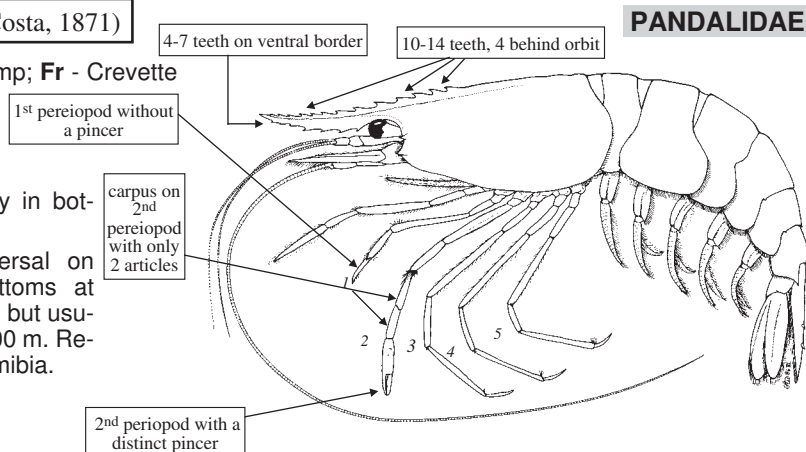
FAO names: **En** - Green shrimp; **Fr** - Crevette verte; **Sp** - Camarón verde.

Local names:

Size: To 7.8 cm total length.

Fisheries: Caught incidentally in bottom trawls.

Habitat and biology: Demersal on muddy and sandy mud bottoms at depths between 75 and 600 m but usually found between 300 and 400 m. Recorded only from northern Namibia.

**PASIPHAEIDAE****PALAEEMONIDAE****PANDALIDAE**

Heterocarpus grimaldi A. Milne Edwards and Bouvier, 1900

(plate IX, 66)

PANDALIDAE

FAO names: En - Grimald's nylon shrimp.

Local names:

Size: To about 17 cm.

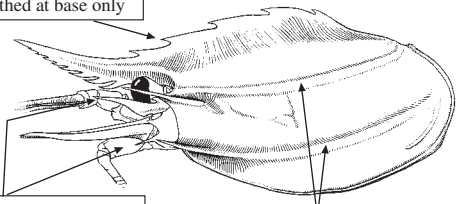
Fisheries: Fairly abundant in deep-water trawls and of potential interest for expanded commercial exploitation.

Habitat and biology: Demersal at depths between 500 and 1 473 m, most commonly between 500 and 1 000 m. Males in analyzed samples typically measured between 20 and 25 mm carapace length while females measured between 21 and 40 mm, indicating a sexual size dimorphism or potential protandrous hermaphroditism.

dorsal margin of rostrum mostly smooth, toothed at base only

antennal spine much longer than pterygostomian spine

carapace with 2 lateral crests along nearly its entire length



Plesionika acanthonotus (S.I. Smith, 1882)

PANDALIDAE

FAO names: En - Lesser striped shrimp; Fr - Crevette naine rayée; Sp - Camarón rayado menor.

Local names: Tiefseegarnele (Gr).

Size: To 8.5 cm total length.

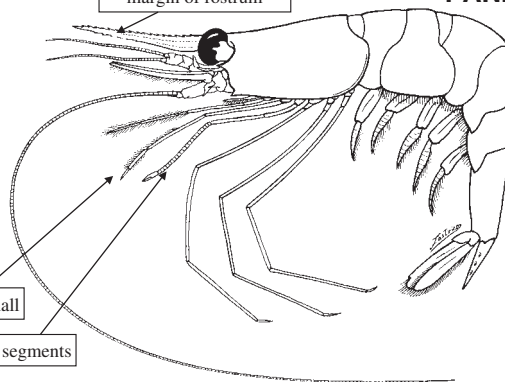
Fisheries: Caught incidentally in bottom trawls.

Habitat and biology: Found at depths of 190 to 1 350 m, on muddy bottoms. Recorded off northern Namibia.

8 or less teeth on ventral margin of rostrum

pincer on 1st pereopod very small

carpus of 2nd pereopod with more than 3 segments



Plesionika martia (A. Milne Edwards, 1883)

PANDALIDAE

FAO names: En - Golden shrimp; Fr - Crevette dorée; Sp - Camarón de oro.

Local names: Tiefseegarnele (Gr).

Size: To 17 cm total length.

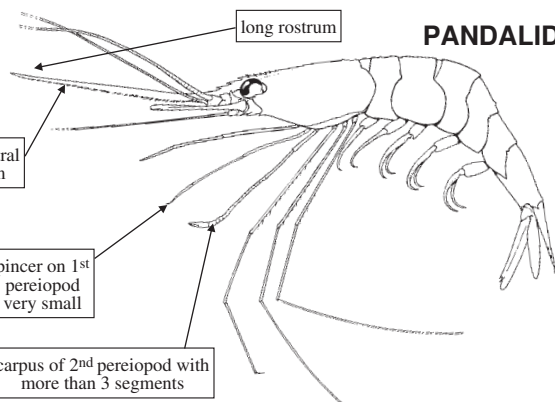
Fisheries: Caught mainly with bottom and pelagic trawls.

Habitat and biology: A primarily demersal species, inhabiting muddy bottoms between depths of 300 and 700 m. Off the northern part of the country. Feeds mainly on crustaceans and carrion.

42-52 teeth on ventral margin of rostrum

pincer on 1st pereopod very small

carpus of 2nd pereopod with more than 3 segments



Pontocaris lacazei (Gourret, 1887)

CRANGONIDAE

FAO names: En - Hardshell shrimp; Fr - Crevette crâne; Sp - Camarón de casco.

Local names:

Size: To 4.9 cm total length.

Fisheries: Caught with bottom trawls.

Habitat and biology: Found on the continental shelf and upper slope, at depths between 50 and almost 700 m. Off northern Namibia.

antennal-scale margin straight with strong tooth on end

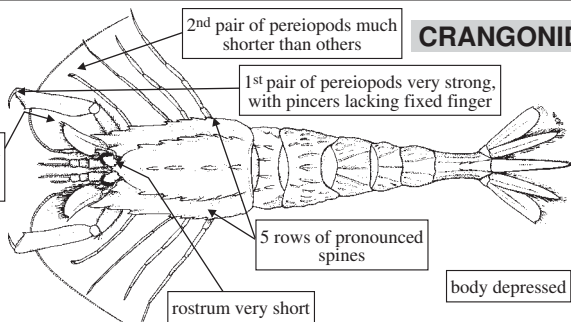
2nd pair of pereopods much shorter than others

1st pair of pereopods very strong, with pincers lacking fixed finger

5 rows of pronounced spines

rostrum very short

body depressed

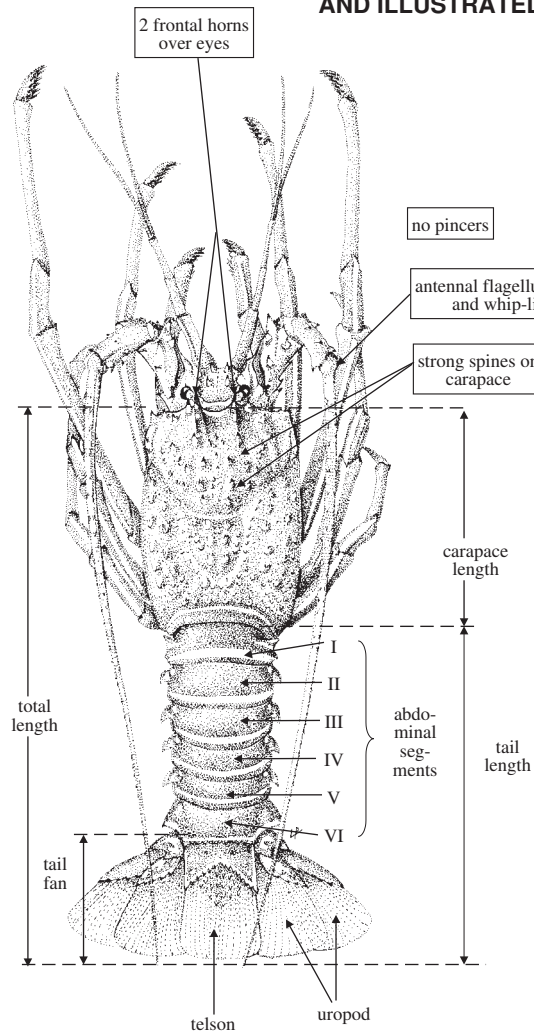


LOBSTERS

A single species of lobster, the Cape rock lobster, is presently of prime interest to fisheries in Namibia. It is the basis of an important fishery centred in Lüderitz. Four additional species of lobsters that occur in Namibia are of potential interest to fisheries and are presented here. Six additional lobsters may also occur in fisheries off Namibia (Holthuis, 1991), but are not considered important and only their family identification is considered.

Lobsters are crustaceans that can look similar to shrimps except that lobsters have flattened (compressed from top to bottom) or cylindrical bodies while shrimps almost always have laterally compressed (flattened from side to side) bodies. The families of lobsters in Namibia can be easily distinguished by their general body and head shape, the presence of large chela or pincers on the first pereiopod, the length of the flagella, and their distribution.

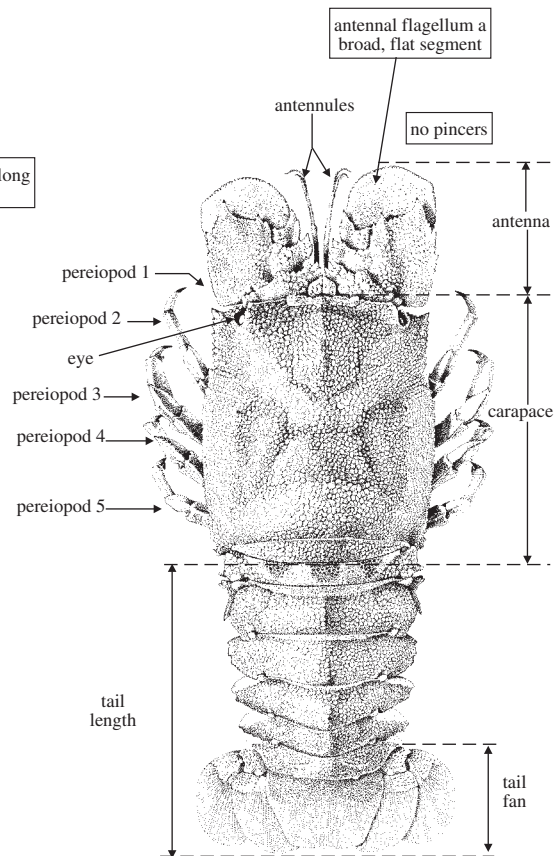
TECHNICAL TERMS AND MEASUREMENTS, AND ILLUSTRATED GUIDE TO FAMILIES



PALINURIDAE

Spiny lobsters

Three species found in Namibia, all included in the "Guide to Species."



SCYLLARIDAE

Slipper lobsters

Only 1 species found in the extreme northern part of Namibia, included in the "Guide to Species."

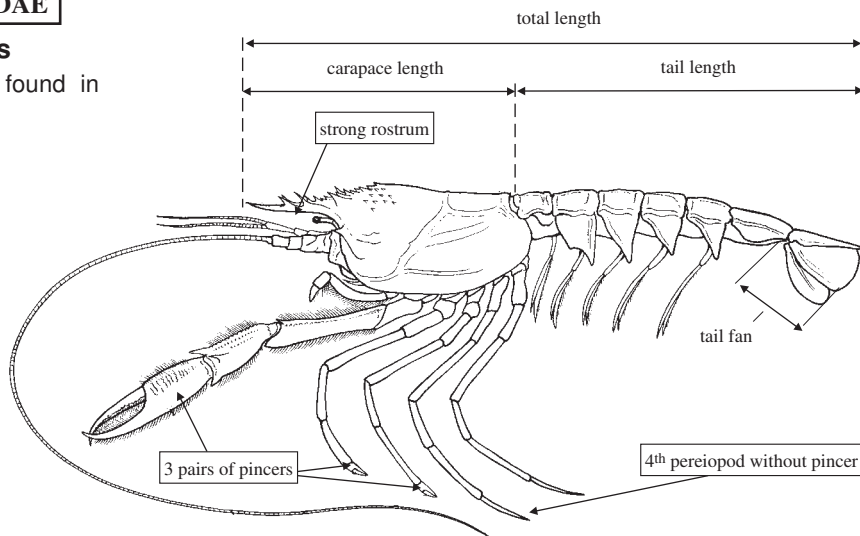


NEPHROPIDAE

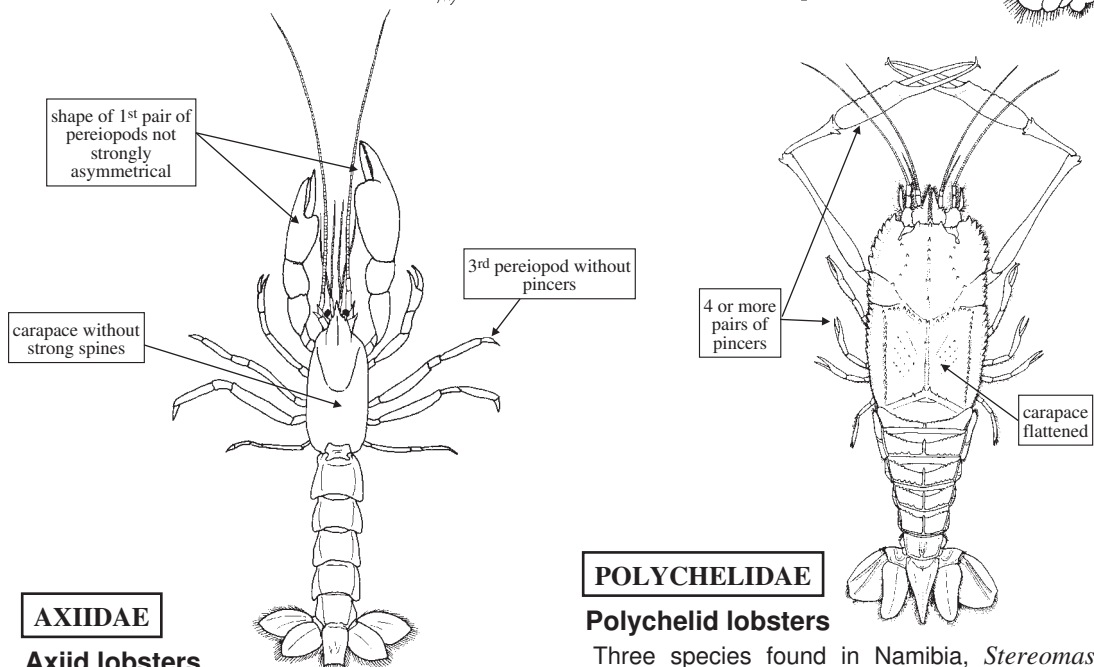
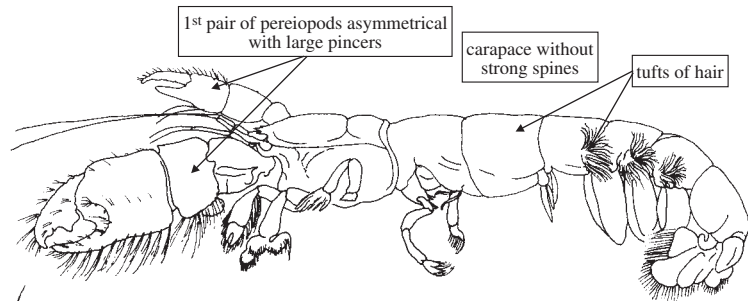
Page 38

True lobsters

One species found in Namibia.

**CALLIANASSIDAE****Ghost shrimps**

One species reported from Namibia, *Callianassa australis* Kensley, 1974; not included in the "Guide to Species."

**AXIIDAE****Axiid lobsters**

Two species in Namibia, *Calostacus longispinis* (McArble, 1901) and *Calocaris barnardi* Stebbing, 1914; neither included in the "Guide to Species."

POLYCHELIDAE**Polychelid lobsters**

Three species found in Namibia, *Stereomastis submi* (Bate, 1878), *S. grimaldi* (Bouvier, 1905), and *S. talismani* (Bouvier, 1917); none considered important to fisheries and therefore none included in the "Guide to Species."

Jasus lalandii (H. Milne Edwards, 1837) (plate I, 5)

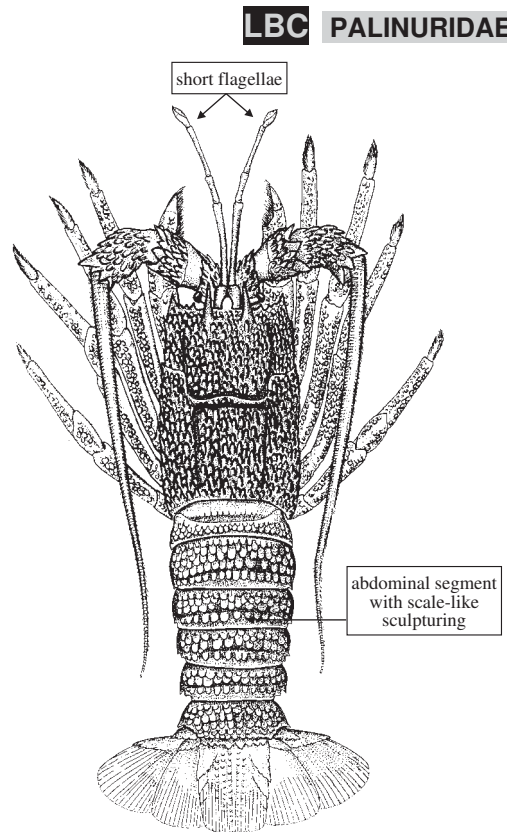
FAO names: **En** - Cape rock lobster; **Fr** - Langouste du Cap; **Sp** - Langosta del Cabo.

Local names: West coast rock lobster; Crayfish; Kreef (Ak); Afrikanische Languste, Kap-Languste, Rote Languste (Gr).

Size: Maximum total body length 46 cm, carapace length 18 cm.

Fisheries: Captured by lobster pots and hoop nets. An important fishery for this species centred around Lüderitz where there were reported landings of around 2 000 t per year in the 1980's. In the 1950's and 1960's however, landings averaged around 7 000 t per year and reached a peak in 1952 of over 13 000 t. The current closed season for lobster is between the months of November and May and the size restriction is a minimum of 65 mm carapace length.

Habitat and biology: Occurs in coastal waters on rocky bottoms in depths up to about 100 m. Males molt between September and December and females molt between April and May after which mating takes place; females reach sexual maturity at 57 to 59 mm carapace length; hatching appears to be synchronized with the onset of upwelling; larvae settle in shallow-water kelp beds, adults move to deeper waters. Lifespan is about 30 to 40 years. Feeds primarily on mussels, other invertebrates and sometimes seaweeds; octopus is an important predator, preying on a wide size range. In Namibia found south of 21°S.

***Panulirus regius*** De Brito Capello, 1864

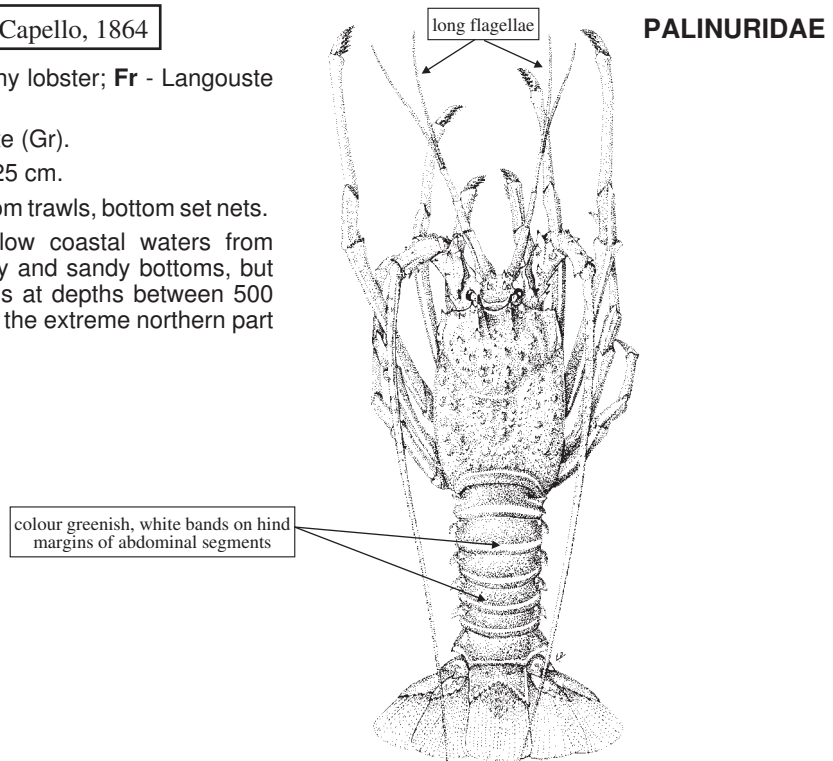
FAO names: **En** - Royal spiny lobster; **Fr** - Langouste royale; **Sp** - Langosta real.

Local names: Königslanguste (Gr).

Size: To 35 cm, common to 25 cm.

Fisheries: Lobster pots, bottom trawls, bottom set nets.

Habitat and biology: Shallow coastal waters from depths of 5 to 40 m on rocky and sandy bottoms, but also reported on soft bottoms at depths between 500 and 600 m. Only recorded in the extreme northern part of Namibia.



***Projasus parkeri* (Stebbing, 1902)**

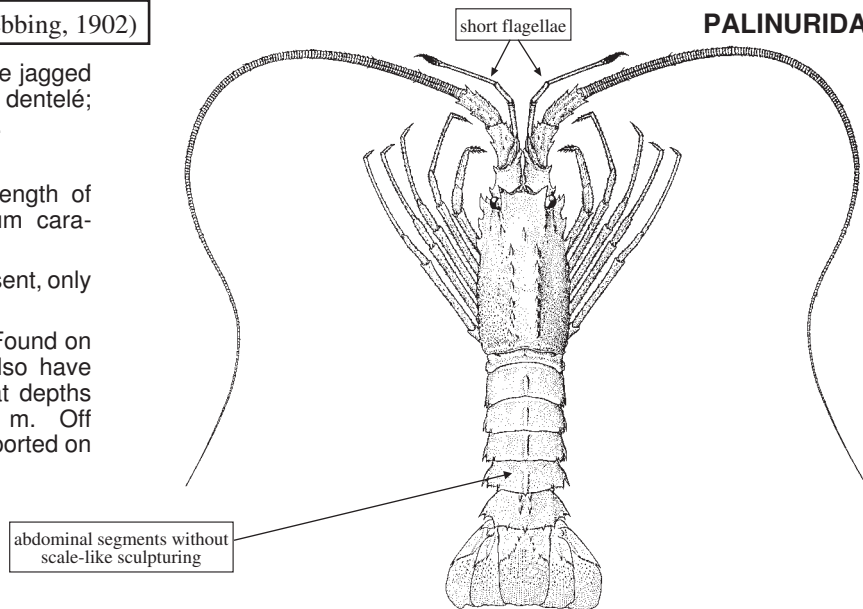
FAO names: **En** - Cape jagged lobster; **Fr** - Langouste dentelé; **Sp** - Langosta dentada.

Local names:

Size: Maximum total length of about 15 cm, maximum carapace length is 6 cm.

Fisheries: None at present, only rarely caught.

Habitat and biology: Found on muddy bottoms that also have some rock and coral at depths between 370 and 841 m. Off Namibia, so far only reported on Valdivia Bank.

PALINURIDAE***Scyllarides herklotsii* (Herklots, 1851)**

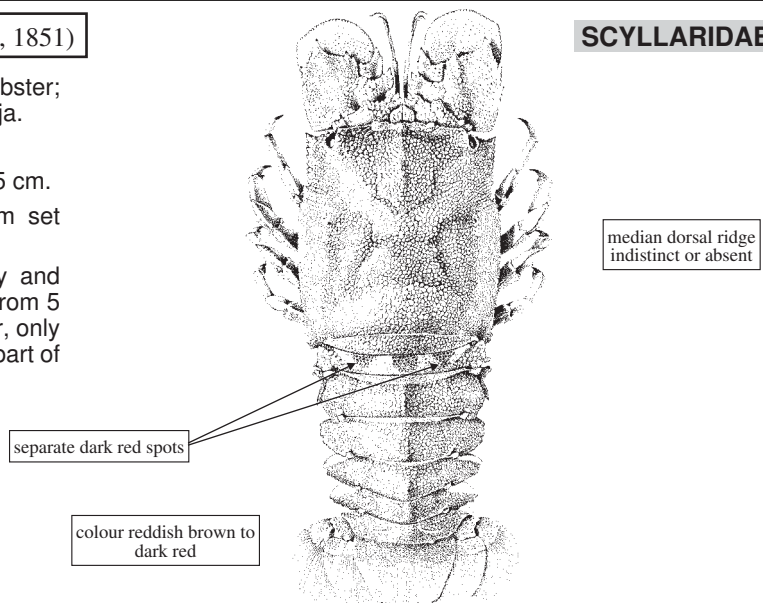
FAO names: **En** - Red slipper lobster; **Fr** - Cigale rouge; **Sp** - Cigarra roja.

Local names:

Size: About 32 cm, common to 25 cm.

Fisheries: Bottom trawls, bottom set nets.

Habitat and biology: On sandy and rocky bottoms usually at depths from 5 to 70 m, but also to 300 m. So far, only reported in the extreme northern part of Namibia.

SCYLLARIDAE***Nephropsis atlantica* Norman, 1882**

(plate I, 6)

NEPHROPIDAE

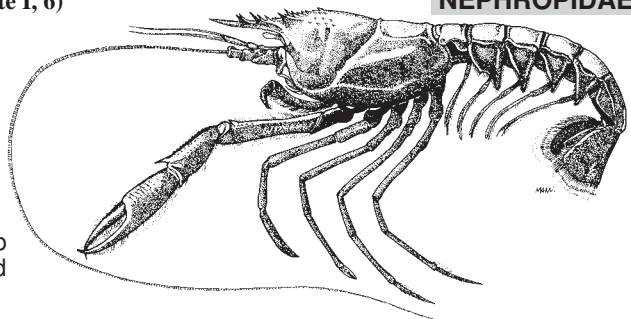
FAO names: **En** - Scarlet lobsterette; **Fr** - Langoustine écarlate; **Sp** - Cigalo escarlata.

Local names:

Size: Maximum total length 10.3 cm.

Fisheries: Taken as bycatch in trawls.

Habitat and biology: On mud bottoms in deep water from 470 to 1 800 m. In Namibia reported north of 24°S.

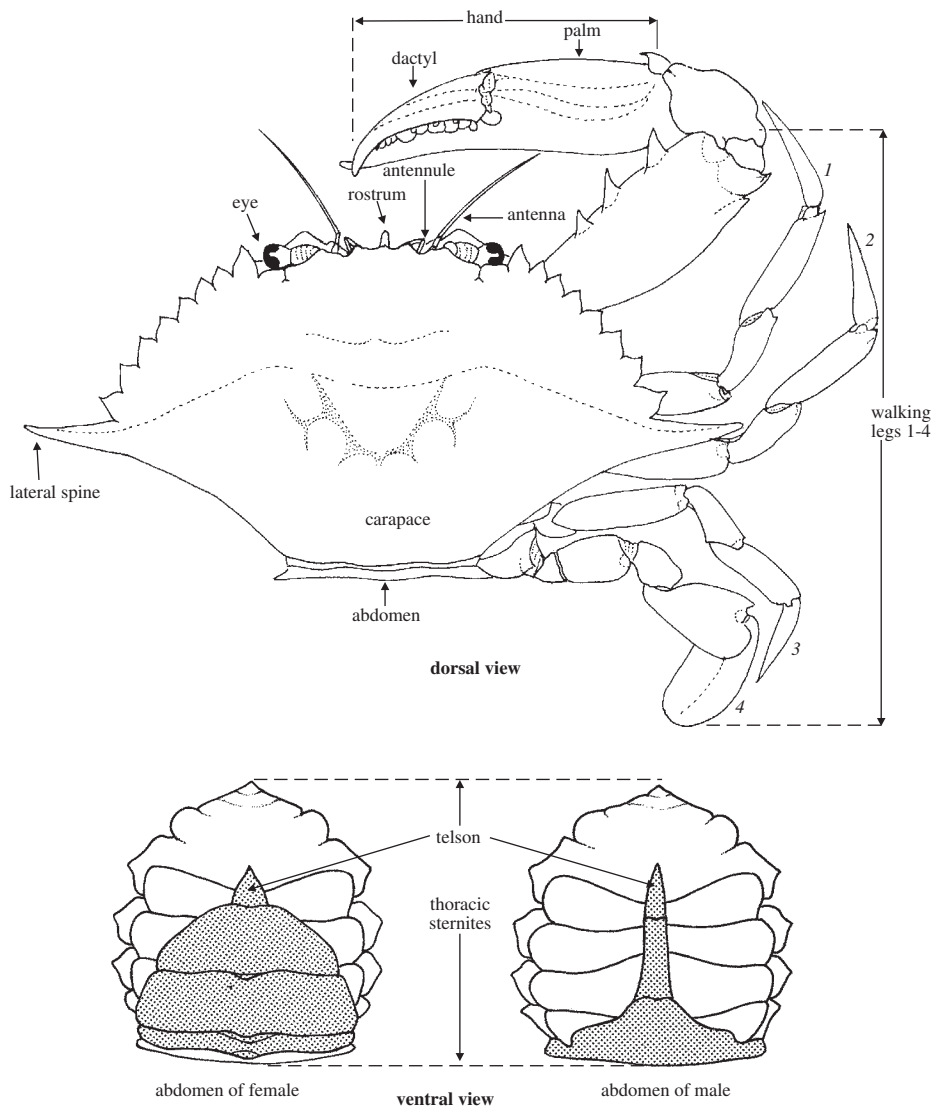


CRABS

Many species of crabs occur in Namibia, but only a few species are considered as potentially important to fisheries. A substantial fishery already exists for 1 species, *Chaceon maritae* (West African geryon). For our list of offshore crabs, we rely on Macpherson (1991) who completed extensive pelagic and benthic trawls off the coast of Namibia. He recorded 12 species in 5 families of anomuran crabs and 23 species in 11 families of brachyuran crabs. These 35 species are those likely to be encountered in offshore fisheries. We also include in this guide 3 nearshore crabs that are likely to be of interest to fisheries although there are other nearshore and littoral crabs that occur in Namibia. Of these 38 species, we list only 7 species in 6 different families of present or potential interest to fisheries. In order to aid the researcher to identify at least to family level all crabs that are likely to occur (but not necessarily of importance) in fisheries, our "Guide to Suborders and Families" covers 16 families of crabs that may be encountered.

The classification of crabs above the species level is often confusing since different taxonomists sometimes use different ranks and groups. For crustaceans we generally follow Holthuis (1991) and therefore recognize 2 suborders of crabs: the Anomura and Brachyura. These 2 suborders are easily separable by the position of the abdomen and the size of the last pair of legs.

TECHNICAL TERMS AND MEASUREMENTS



Suborder **ANOMURA** - Hermit Crabs, Stone Crabs,
King Crabs, and Squat Lobsters

Abdomen only somewhat reduced, not firmly tucked underneath carapace; the fifth pair of legs often reduced so that it appears as if there are only 3 pairs of walking legs. Five families from Namibia, only 1 represented in the "Guide to Species."

LITHODIDAE

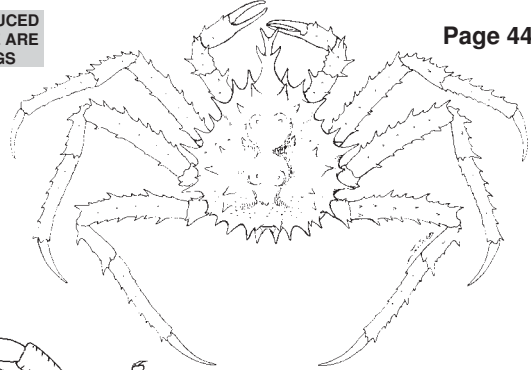
Stone and king crabs

Two species included in "Guide to Species"; another not included is *Paralomis africana* Macpherson, 1982.

THE 5th PAIR OF LEGS OFTEN REDUCED
SO THAT IT APPEARS AS IF THERE ARE
ONLY 3 PAIRS OF WALKING LEGS

Page 44

ABDOMEN ONLY SOMEWHAT
REDUCED, NOT FIRMLY TUCKED
UNDERNEATH CARAPACE



DIOGENIDAE

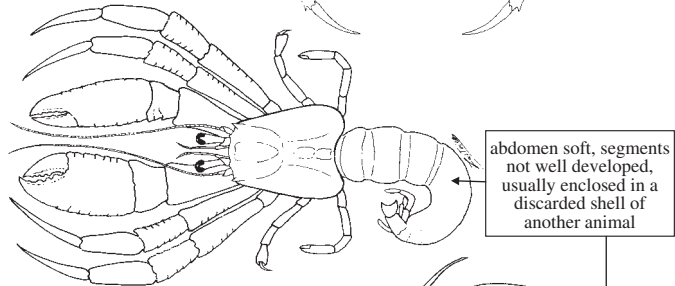
Left-handed hermit crabs

One species likely to be encountered in Namibia, *Dardanus arrosor* (Herbst, 1796); not included in the "Guide to Species." Demersal, at depths between 100 and 200 m.

PARAPAGURIDAE

Deepwater hermit crabs

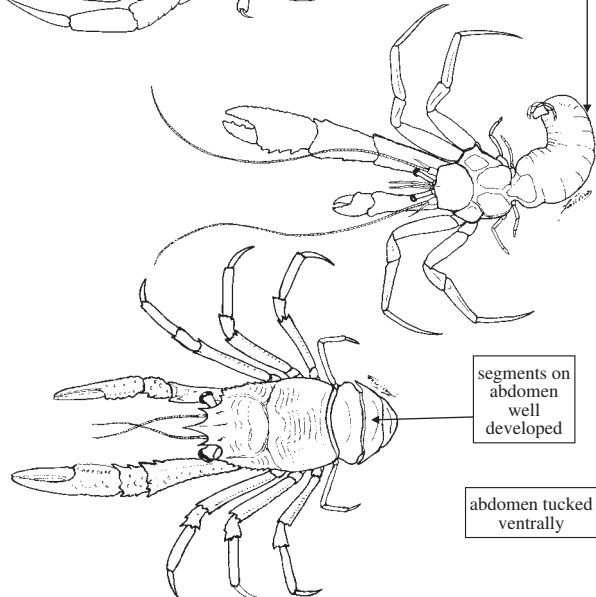
Three species likely to be encountered, *Parapagurus bouvieri* Stebbing, 1910, *Sympagrus dimorphus* (Studer, 1883), and *S. macrocerus* Forest, 1955, none included in the "Guide to Species." All demersal species occurring at depths between 200 and 800 m.



GALATHEIDAE

Squat lobsters

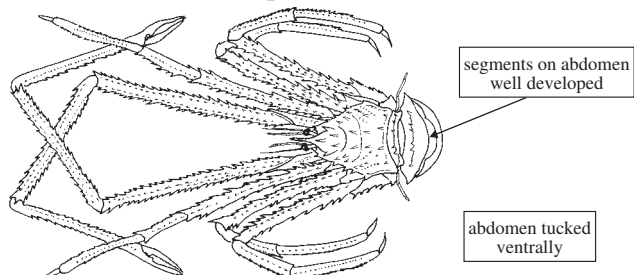
Four species likely to be encountered, *Munidopsis chuni* Doflein and Balss, 1913, *M. longirostris* A. Milne Edwards and Bouvier, 1897, *Munida benguela* Saint Laurent and Macpherson, 1988, and *M. speciosa* von Martens, 1878; none included in the "Guide to Species."



CHIROSTYLIDAE

Chirostylid crabs

One species likely to be encountered in Namibia, *Eumunidae squamifera* Saint Laurent and Macpherson, 1990; not included in the "Guide to Species." Demersal, caught at depths between 300 and 500 m.



Suborder **BRACHYURA - True Crabs**

Abdomen reduced, tucked tightly underneath carapace; last pair of legs not substantially reduced. Twelve families from Namibia, 5 of these represented in the "Guide to Species."

DROMIIDAE**Sponge crabs**

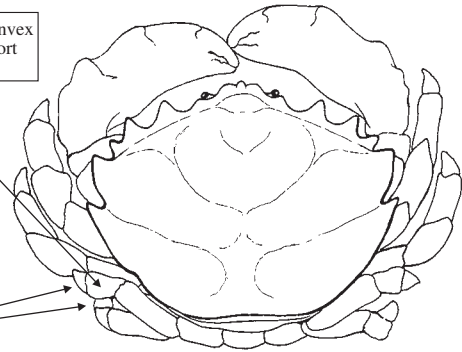
Three demersal species likely to be encountered, *Exodromidia bicornis* (Studer, 1882), *E. spinosa* (Studer, 1882), and *Pseudodromia inermis* Macpherson, 1988; none included in the "Guide to Species."

carapace strongly convex anteriorly, with short hairs

last pair of legs in a dorsal position

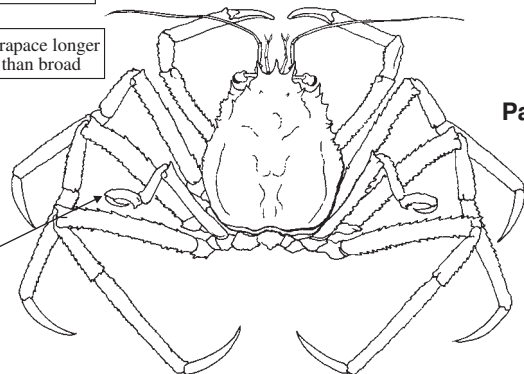
last 2 pairs of legs much shorter than the preceding pairs

carapace longer than broad

**HOMOLIDAE****Homolid crabs**

One species likely to be encountered, included in the "Guide to Species."

only the last pair of legs much shorter than others, in a dorsal position



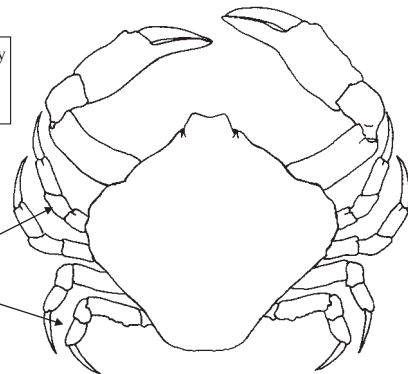
Page 44

**LEUCOSIDAE****Purse crabs**

One species, *Ebalia scandens* (Stebbing, 1921); not included in the "Guide to Species."

body globular or nearly quadrangular with apices directed front, rear, and to the sides

last 4 pairs of legs similar in shape



area between eyes produced, usually with 2 long teeth

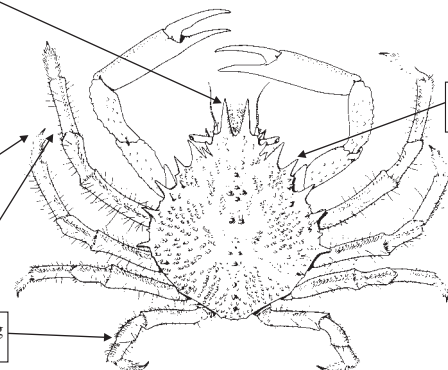
MAJIDAE**Spider crabs**

One species included in the "Guide to Species," 4 others not included are *Inachus angolensis* Capart, 1951, *I. grillator* Manning and Holthuis, 1981, *Rochinia hertwigi* (Doflein, 1900), *Dorynchus basi* Macpherson, 1983, and *Macropodia macrocheles* (A. Milne Edwards and Bouvier, 1898).

dactylus with spines

often spines on carapace

last 4 pairs of legs similar but varying in length, usually hairy and spiny



Page 45

CALAPPIDAE

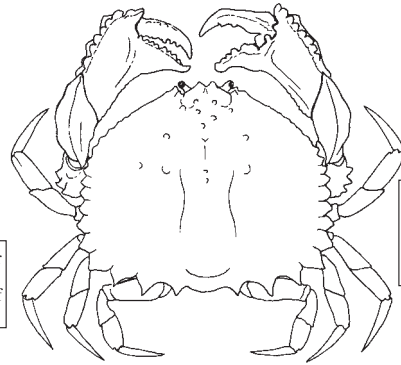
Page 45

Box crabs

One species included in the "Guide to Species"; 2 others not included are *Acanthocarpus brevispinis* Monod, 1946 and *Mursia cristimanus* de Haan, 1837. Demersal at depths between 100 and 500 m.

clypeiform expansions over legs, or a pronounced lateral spine on each side of carapace

carapace strongly convex, anterior and lateral margins in a single arc

**CORYSITIDAE****Corysitid crabs**

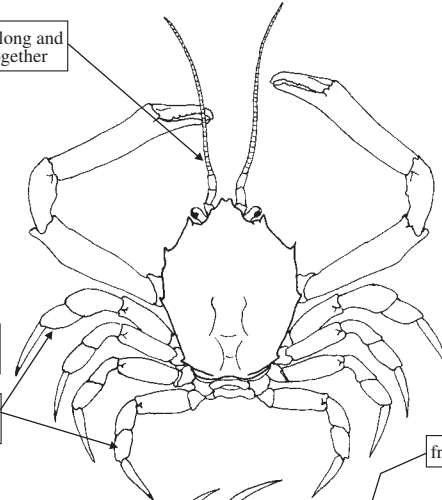
One species likely to be encountered, *Nautilocorystes ocellatus* (Gray, 1831); not included in the "Guide to Species."

antennae long and close together

carapace longer than broad, surface without spines

last 4 pairs of legs similar in shape

front with 4 teeth

**GERYONIDAE****Deepsea crabs**

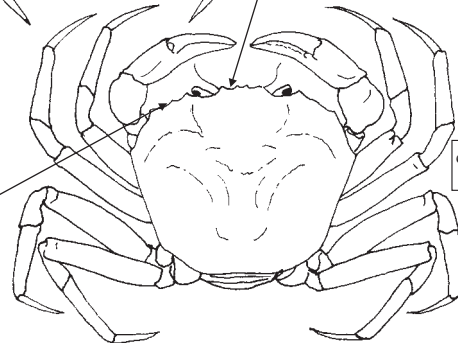
One species included in the "Guide to Species," another, *Chaceon chuni* (Macpherson, 1983) not included.

anterolateral margin with 3-5 indistinct teeth

last 4 pairs of legs similar, long, slender, and smooth

Page 45

carapace trapezoid, broader than long

**GONEPLACIDAE****Goneplacid crabs**

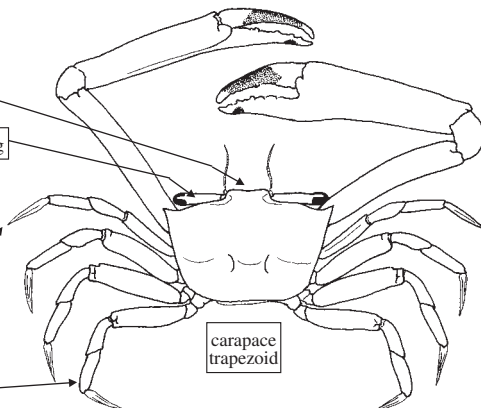
Two species, *Goneplax rhomboides* (Linnaeus, 1758) and *Neopilumnoplax heterochir* (Studer, 1882); neither included in the "Guide to Species."

front of carapace relatively broad and smooth, without teeth

eyestalk long

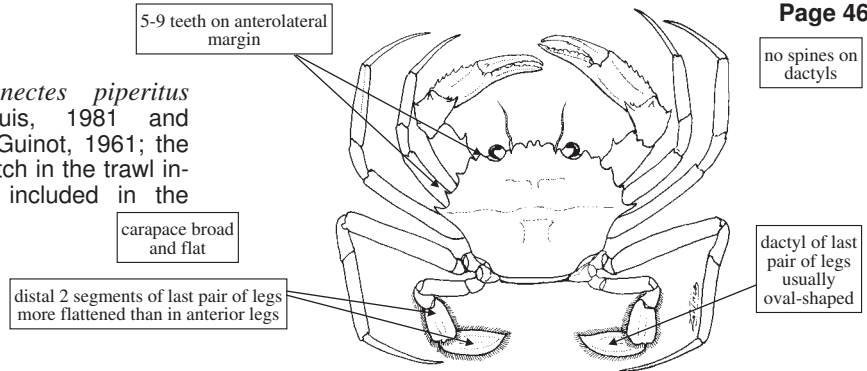
last 4 pairs of legs similar in shape

carapace trapezoid



PORTUNIDAE**Swimming crabs**

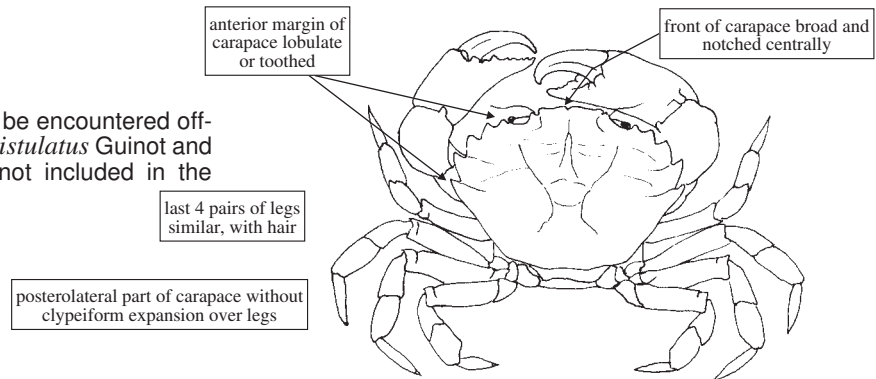
Two species, *Bathynectes piperitus* Manning and Holthuis, 1981 and *Macropipus australis* Guinot, 1961; the former a frequent bycatch in the trawl industry and therefore included in the "Guide to Species."



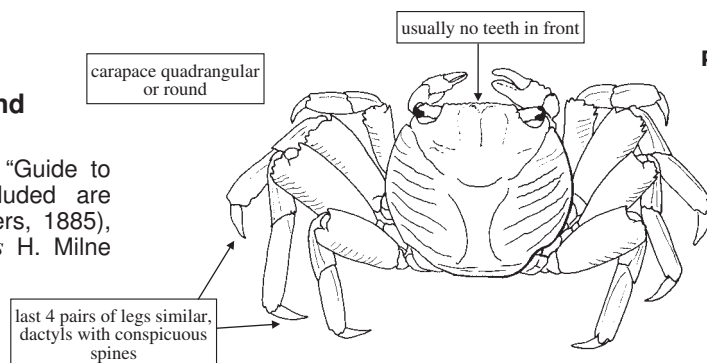
Page 46

XANTHIDAE**Mud crabs**

One species likely to be encountered offshore, *Monodaeus cristulatus* Guinot and Macpherson, 1989; not included in the "Guide to Species."

**GRAPSIDAE****Lightfoot, shore, marsh, and matchbox crabs**

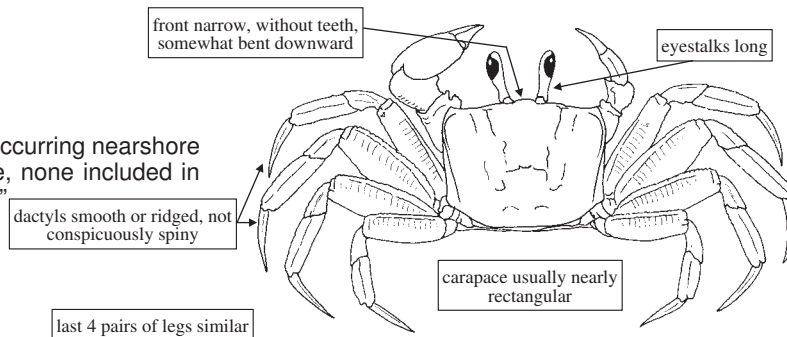
Two species included in the "Guide to Species"; 2 others not included are *Mierstograpsus kingsleyi* (Miers, 1885), and *Euchirograpsus liguricus* H. Milne Edwards, 1853.



Page 46

OCYPODIDAE**Ghost crabs**

A number of species occurring nearshore and in the littoral zone, none included in the "Guide to Species."



Lithodes ferox Filhol, 1885

(plate I, 7)

KCF LITHODIDAE

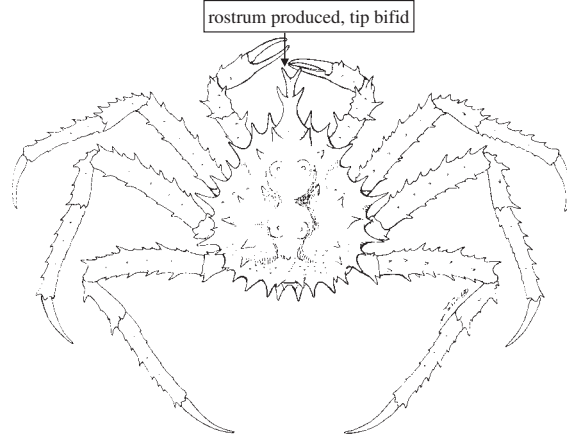
FAO names: **En** - Fierce king crab; **Fr** - Crabe royale féroce; **Sp** - Centolla feroz.

Local names: Stone crab, Spider crab.

Size: To about 11 cm carapace width.

Fisheries: Caught commonly in bottom trawls.

Habitat and biology: Demersal, at depths between 300 and 500 m.



Neolithodes asperrimus Barnard, 1947

LITHODIDAE

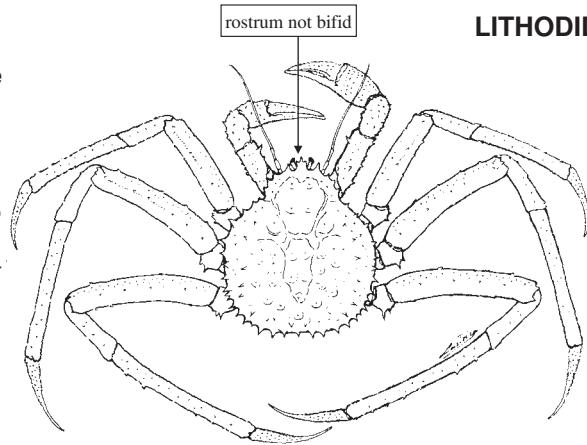
FAO names: **En** - Rough king crab; **Fr** - Crabe royale grêle; **Sp** - Centolla áspera.

Local names: Stone crab, Spider crab.

Size: To about 19 cm carapace length.

Fisheries: Caught incidentally in bottom trawls, also occasionally in crab pots.

Habitat and biology: Demersal, at depths between 600 and 2 000 m.



Paromola cuvieri (Risso, 1816)

HOMOLIDAE

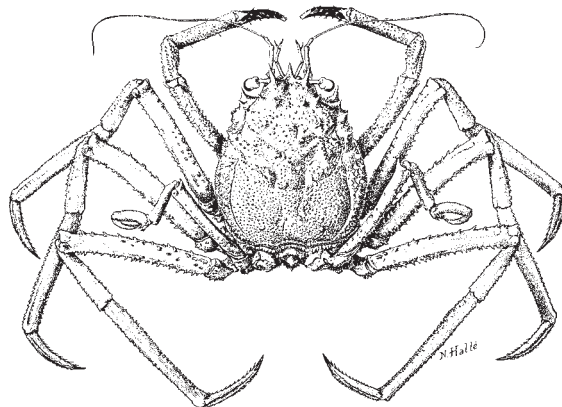
FAO names: **En** - Paromola; **Fr** - Paromole; **Sp** - Paromola.

Local names:

Size: To about 21.5 cm carapace length, commonly from 10 to 16 cm.

Fisheries: Caught incidentally in bottom trawls.

Habitat and biology: Demersal, at depths between 50 and 1 000 m, commonly between 300 and 400 m.



***Maja squinado* (Herbst, 1788)**

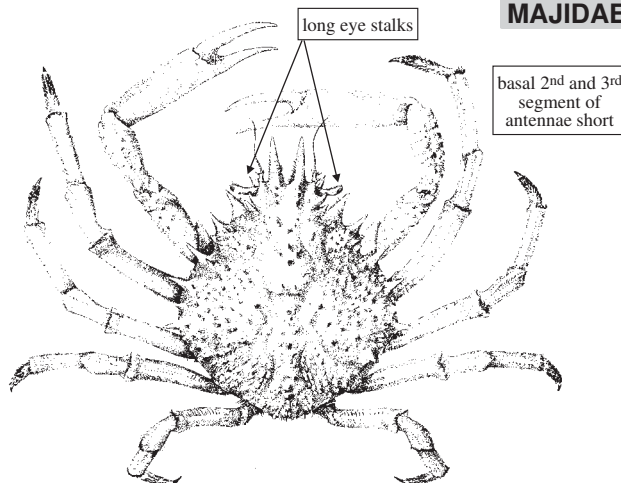
FAO names: **En** - Spinous spider crab; **Fr** - Araignée européenne; **Sp** - Centolla europea.

Local names: Seaspider, Spidercrab, Spiny crab; Große Seespinne (Gr).

Size: To 22 cm carapace length.

Fisheries: Caught with bottom trawls and trammel nets.

Habitat and biology: Sublittoral, to a depth of 75 m.

**MAJIDAE*****Calappa pelii* Herklots 1851**

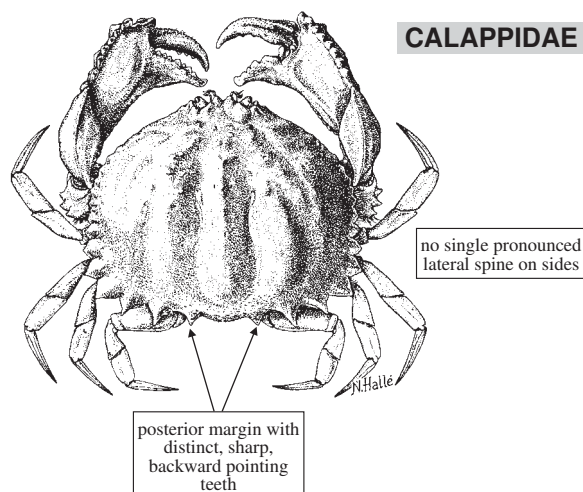
FAO names: **En** - Spiny box crab; **Fr** - Migraine épineuse; **Sp** - Calapa espinuda.

Local names:

Size: To 6 cm (carapace width).

Fisheries: Caught incidentally in bottom trawls.

Habitat and biology: Burrows in sand or sandy mud between depths of 12 and 400 m, common between 100 and 200 m depth.

**CALAPPIDAE*****Chaceon maritae* (Manning and Holthuis, 1981)**

(plate I, 8)

CRR GERYONIDAE

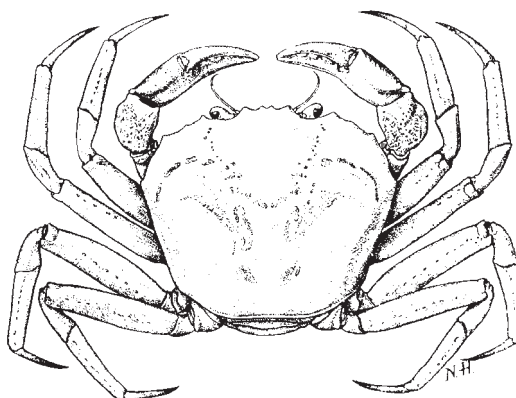
FAO names: **En** - West African geryon; **Fr** - Gérion west-africain; **Sp** - Gerión de Guinea.

Local names: Deepsea red crab; Red crab; Rote Tiefseekrabbe (Gr); Cangrejo Colorado (Sp).

Size: To 16 cm (males) and 10 cm (females) carapace width.

Fisheries: Caught with bottom trawls and pots. Economically important fishery directed at this species, catches currently about 3 000 t per year, but previously up to 10 000 t.

Habitat and biology: Inhabits muddy bottoms at depths between 100 and 950 m, most frequent between 300 and 700 m.



Bathynectes piperitus* Manning and Holthius, 1981*PORTUNIDAE**

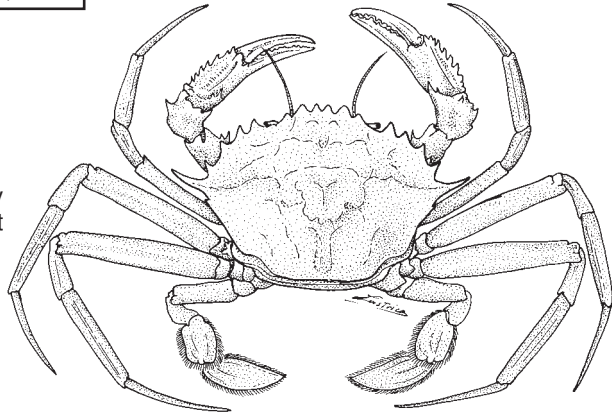
FAO names: **En** - Peppermint swimcrab;
Fr - Etrille menthe poivrée; **Sp** - Juibe menta.

Local names:

Size: To about 8.5 cm (carapace width).

Fisheries: Bycatch in trawl fisheries.

Habitat and biology: Mostly on mud or sandy mud bottoms from depths of 100 to 630 m, most often from 300 to 450 m.

***Grapsus grapsus* (Linnaeus, 1758)****GRAPSIDAE**

FAO names: **En** - Lightfoot crab; **Fr** - Anglette commune; **Sp** - Abuete negro.

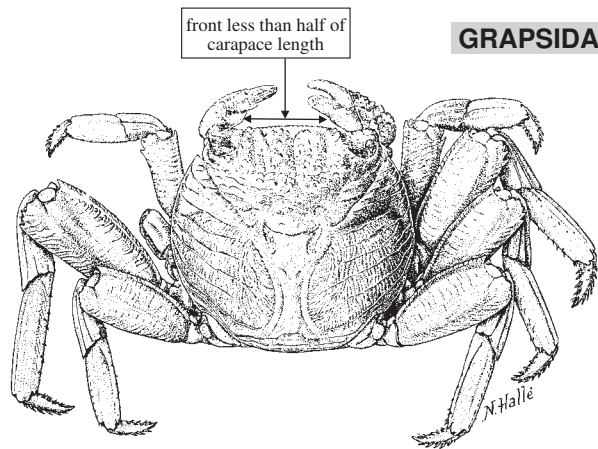
Local names:

Size: To about 9 cm carapace length.

Fisheries: Caught mainly by hand and cast nets.

Habitat and biology: Lives near the water line, on rocks.

carapace nearly oval

***Pachygrapsus transversus* (Gibbes, 1850)****GRAPSIDAE**

FAO names: **En** - African matchbox crab;
Fr - Anglette africaine; **Sp** - Abuete cajeta.

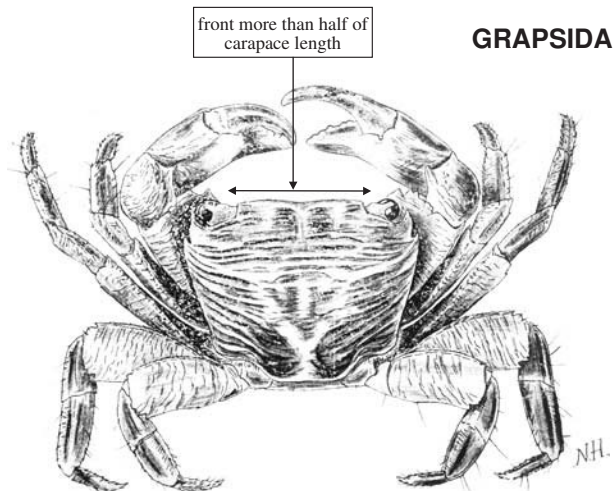
Local names:

Size: To about 1.8 cm carapace length.

Fisheries: Caught mainly by hand and cast nets.

Habitat and biology: On rocks along the coast, just below the surface.

carapace nearly trapezoidal



BIVALVES

Class Bivalvia - pelycepod, clams, oysters, and allies

The relative shortage of rocky substratum on the coast of Namibia offers a restricted habitat range for shellfish that require a rocky substratum. In some areas, however, where rock does occur in the intertidal and subtidal, dense beds of mussels and limpets occur. Mussels are eaten in limited quantities by the coastal population. Limpets, though less utilized, are minced and made into fish cakes. Some sand dwelling bivalves may be abundant along the predominantly sandy coast on Namibia. These molluscs are used for fish bait and for human consumption.

Choromytilus meridionalis Krauss, (1848)

MYTILIDAE

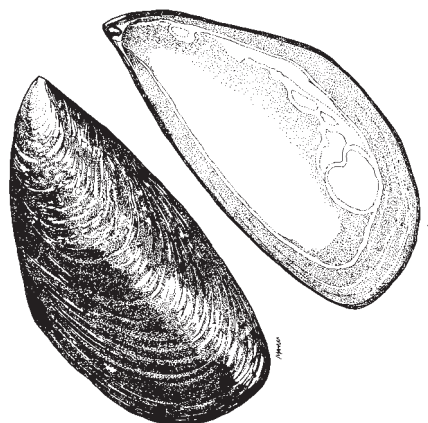
FAO names: En - Black mussel.

Local names:

Size: Maximum length 15 cm.

Utilization: Collected and eaten by coastal populations. Experimentally cultivated near Lüderitz.

Habitat and biology: Common in the cooler southern half of the coast where it forms dense beds on wave exposed rocks in the mid to lower intertidal; also on harbour piles and docks. In the Swakopmund area, *C. meridionalis* occurs higher up the shore as the mid and lower intertidal is usually occupied by another mussel, *Perna perna*.



Perna perna Linnaeus, (1758)

MYTILIDAE

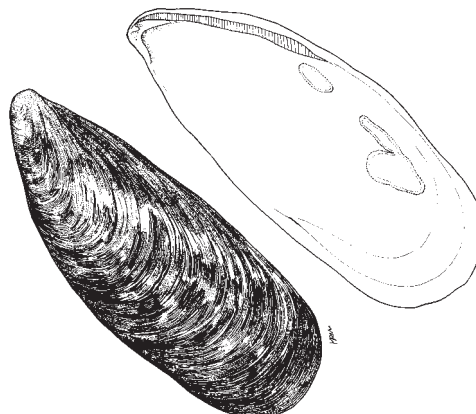
FAO names: En - Perna mussel.

Local names: Brown mussel.

Size: Maximum length 16 cm.

Utilization: Collected and eaten by coastal population.

Habitat and biology: Rare in the southern half of the coast, this warmer water mussel is common in the northern half of the coast and into Angola. Forms dense beds in the lower intertidal and shallow on the wave exposed shores.



GASTROPODS

Class Gastropoda - univalves, conches, whelks, chanks, and allies

***Patella argenvillei* Krauss (1848)**

FAO names: En - Argenvill's limpet.

Local names:

Size: Maximum length 10.4 cm.

Utilization: Can be used as fish bait and minced for human consumption.

Habitat and biology: Inhabits wave exposed rocks in a belt at about the low spring tide level. Found in the cooler waters of the southern half of Namibia. Not found from Walvis Bay northwards.

a large, deep, thick-shelled limpet



PATELLIDAE

fine ridges on outside of shell often covered with algae



***Patella granitina* Linnaeus (1758)**

FAO names: En - Granite limpet.

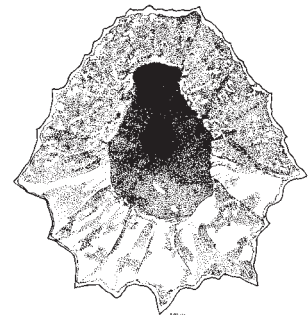
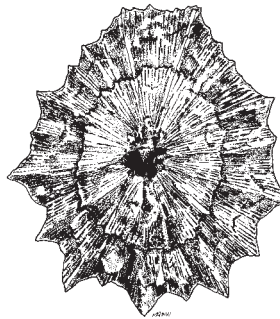
Local names:

Size: Maximum length 8 cm.

Utilization: Can be used as fish bait and minced for human consumption.

Habitat and biology: Occurs in the middle intertidal pools. Common in the cooler southern half of the coast and not common north of Swakopmund. Northern limit thought to be Rocky Point (Kensley and Penrith, 1980).

exterior of shell has deep ridges giving it a star-like appearance



PATELLIDAE

grey-brown with dark zigzag or chevron markings

***Patella granularis* Linnaeus (1758)**

FAO names: En - Granular limpet.

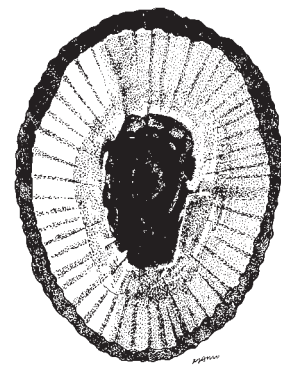
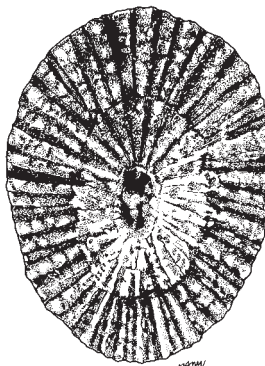
Local names:

Size: Maximum length 6 cm.

Utilization: Can be used as fish bait and minced for human consumption

Habitat and biology: Grows higher up the shore than other limpets, from the middle intertidal to the high spring tide mark. Occurs along the entire coast at least as far north as Cape Frio.

shell with many grooves, deeper than *P. argenvillei* but much shallower than *P. granitina*



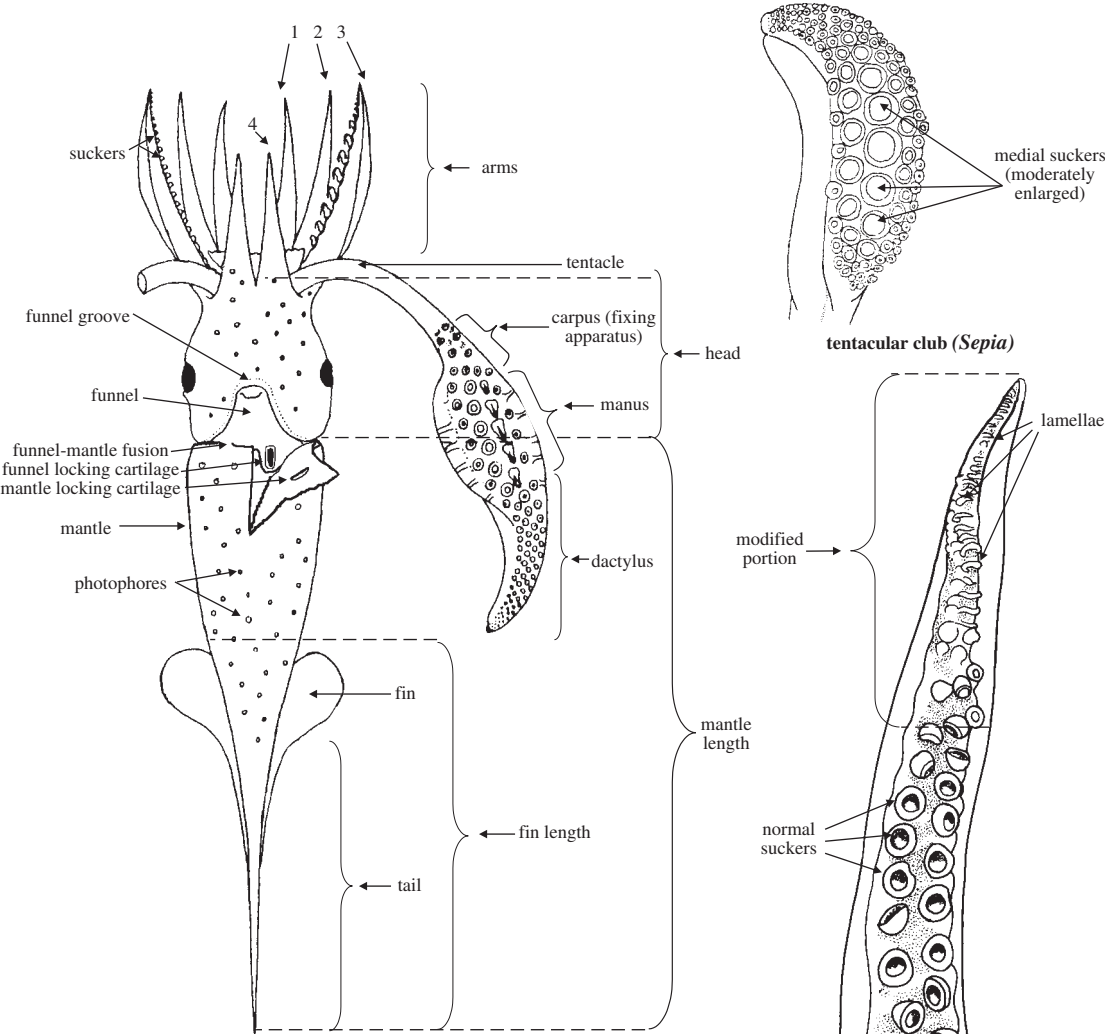
PATELLIDAE

light brown, ribs between grooves covered with light coloured nodules

CEPHALOPODS

As many as 55 species of cephalopods occur in Namibia, according to a recent review by Nesis (1991), but most of these are not presently important in fisheries. Two species, *Todarodes sagittatus angolensis* and *Todaropsis eblanae* are caught incidentally in bottom trawls in the hake fishery in sufficient numbers to be important as bycatch (Wysokinski, 1986). However, cephalopods are a potential resource for further development and may become important in the future. Of the 55 species of cephalopods in 23 families and 4 orders listed from Namibia, we include only 19 species in 8 families in the "Guide to Species." However, in order to allow the interested researcher to identify all cephalopods in Namibia at least to the family level, we include all 23 families in the "Guide to Orders and Families."

TECHNICAL TERMS AND MEASUREMENTS



a composite diagram illustrating basic squid (teuthoid) features

ventral view

example of hectocotyized arm in male (*Illex*)

arm I (dorsal)

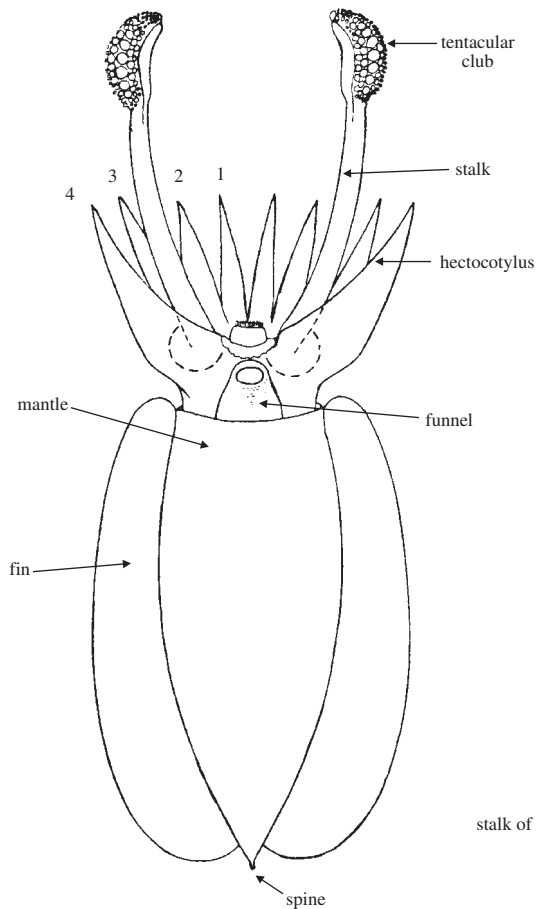
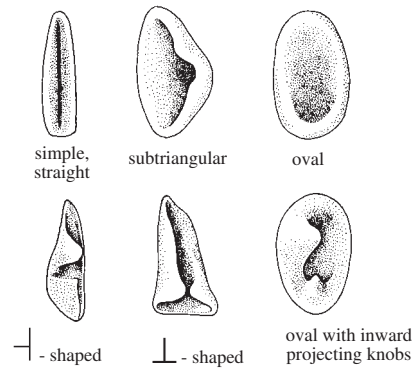


diagram of basic cuttlefish features
(ventral view)



basic types of funnel locking cartilage (cartilaginous grooves that lock with corresponding ridges on inner mantle wall to keep base of funnel in position during water expulsion)

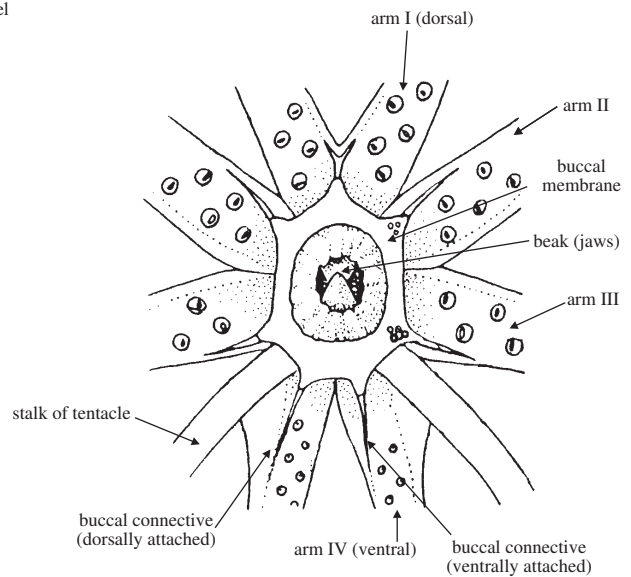
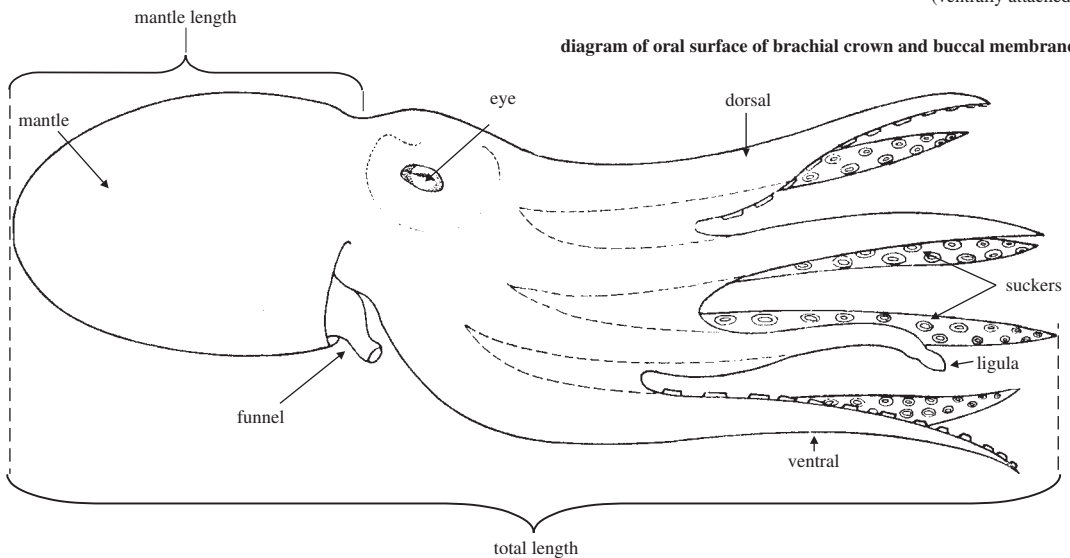


diagram of oral surface of brachial crown and buccal membrane



Order SEPIOIDEA - Cuttlefish, Ram's Horn Squids, and Bobtailed Squids

Appendages around mouth consisting of 8 arms and 2 tentacles; internal shell straight, coiled, and chambered, or straight and rudimentary. Seven species in 3 families so far reported from Namibia.

SPIRULIDAE

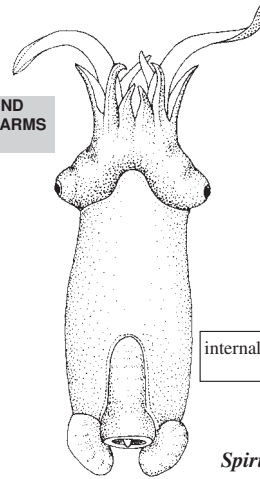
Ram's horn squids

A single species, *Spirula spirula* (Linnaeus, 1758), reported from Namibia; not included in the "Guide to Species." Pelagic to depths of around 100 m; benthic spawner.

10 APPENDAGES AROUND MOUTH CONSISTING OF 8 ARMS AND 2 TENTACLES

INTERNAL SHELL CALCIFIED, CHITINOUS, OR LACKING

INTERNAL SHELL STRAIGHT, COILED, AND CHAMBERED, OR STRAIGHT AND RUDIMENTARY



internal shell calcified, coiled, and chambered

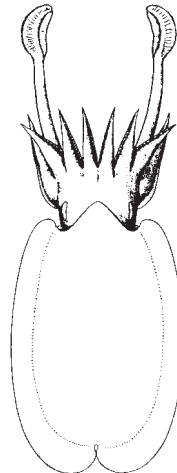
Spirula spirula

dorsal

SEPIIDAE

Cuttlefish

Seven species reported from Namibia, 5 of interest to fisheries and included in the "Guide to Species." All are coastal species and except for *Sepia papillata*, a shallow-water species, generally inhabit depths between 125 and 335 m. *Sepia orbignyana* Férussac, 1876 and *Sepiella ornata* (Rang, 1837) rarely enter northern Namibian waters and are not included in the "Guide to Species."



dorsal view

internal shell calcified, chalky, broad, and straight

Page 59

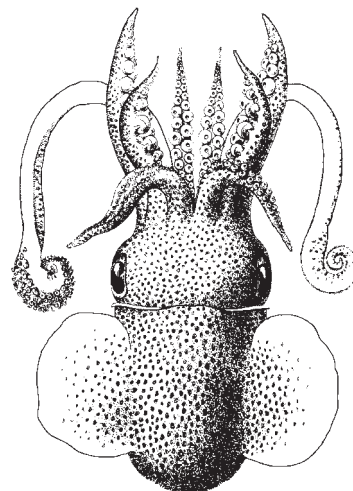


SEPIOLIDAE

Bobtailed squids

Four species: *Neorissa caroli* (Joubin, 1902), *Rondeletiella minor* (Naef, 1912), *Rossia (Austrorossia) enigmatica* Robson, 1924, and *Stoloteuthis leucoptera* (Verrill, 1978) reported from Namibia. Small species, unlikely to be of interest to fisheries; not included in the "Guide to Species."

internal shell chitinous or rudimentary



dorsal view

Order TEUTHOIDEA - Inshore and Oceanic Squids

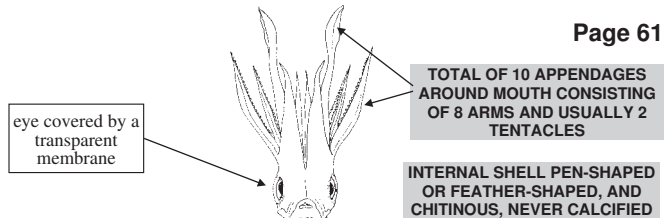
Total of 10 appendages around mouth consisting of 8 arms and usually 2 tentacles; internal shell pen-shaped or feather-shaped, chitinous. About 34 species in 15 families so far reported from Namibia.

LOLIGINIDAE

Page 61

Inshore squids

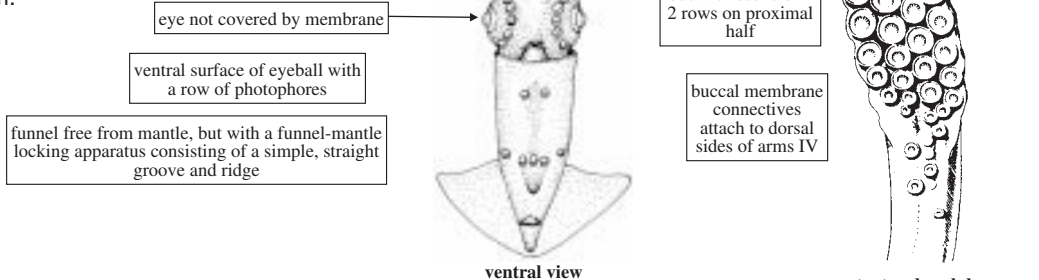
Two species so far reported from Namibia. Neritic, found in shallow water to depths of usually around 300 m.



LYCOTEUTHIDAE

Lyco squids

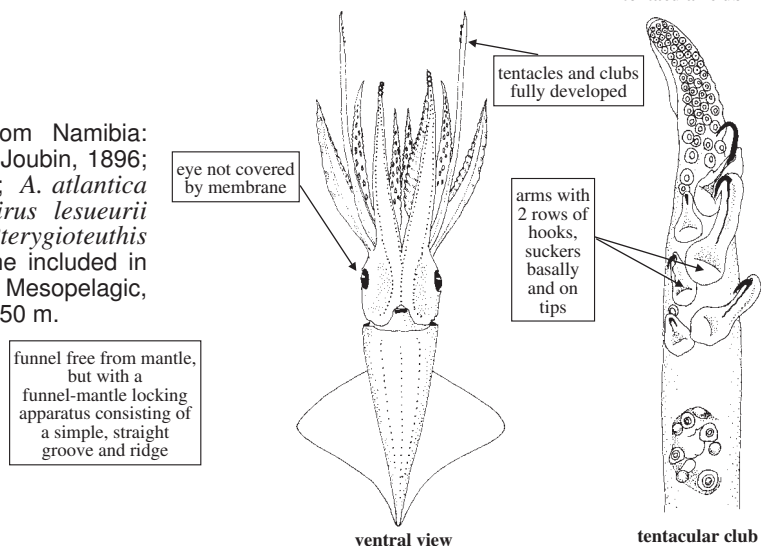
A single species, *Lycoteuthis lorigera* (Steenstrup, 1875) reported from Namibia (*L. diadema* is a junior synonym); not included in the "Guide to Species." Epipelagic, from the surface to a depth of 200 m.



ENOPLOTEUTHIDAE

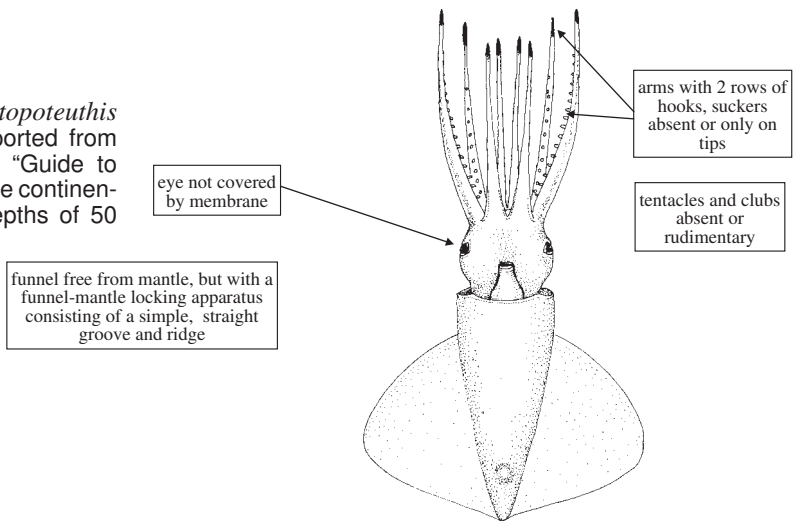
Enope squids

Five species reported from Namibia: *Abraliopsis hoylei pfefferi* Joubin, 1896; *A. gilchristi* Robson, 1924; *A. atlantica* Nesis, 1982; *Ancistrocheirus lesueurii* (d'Orbigny, 1835); *Pterygioteuthis gemmata* Chun, 1908; none included in the "Guide to Species." Mesopelagic, down to depths of around 750 m.

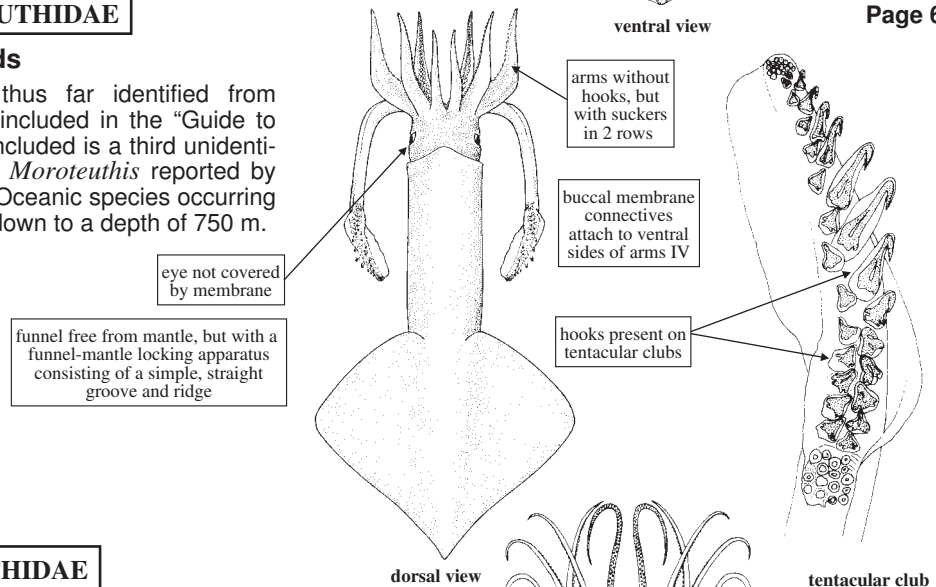


OCTOPOTEUTHIDAE**Octopus squids**

A single species, *Octopoteuthis megaptera* (Verrill, 1885), reported from Namibia; not included in the "Guide to Species." Mesopelagic over the continental slope, usually between depths of 50 and 500 m.

**ONYCHOTEUTHIDAE****Hooked squids**

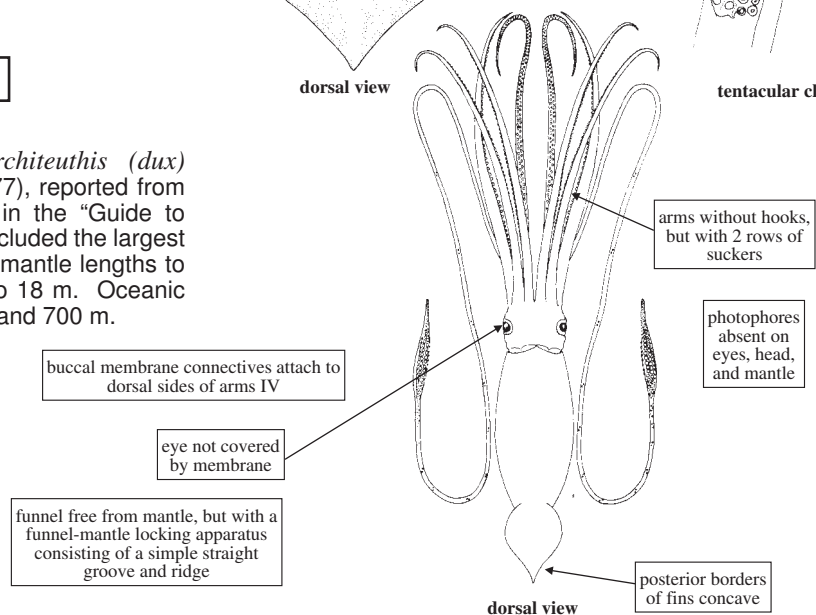
Two species thus far identified from Namibia, both included in the "Guide to Species"; not included is a third unidentified species of *Moroteuthis* reported by Nesis (1991). Oceanic species occurring at the surface down to a depth of 750 m.



Page 62

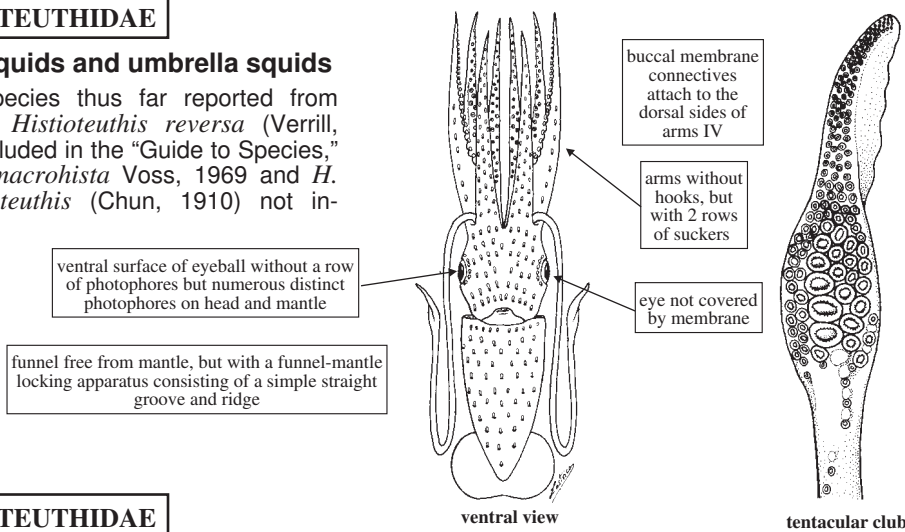
ARCHITEUTHIDAE**Giant squids**

A single species, *Architeuthis (dux) sanctipauli* (Vélain, 1877), reported from Namibia; not included in the "Guide to Species." This family included the largest of all cephalopods with mantle lengths to 5 m and total lengths to 18 m. Oceanic between depths of 200 and 700 m.

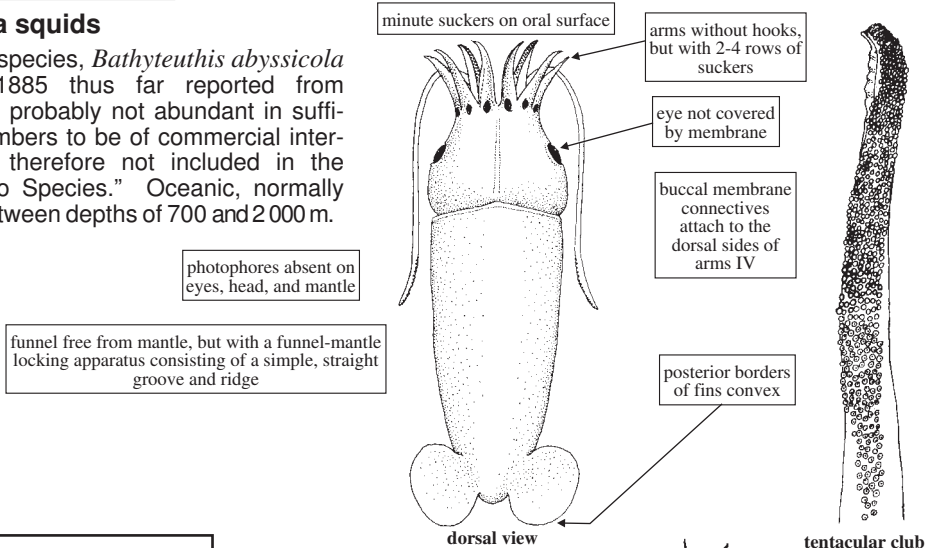


HISTIOTEUTHIDAE**Jewell squids and umbrella squids**

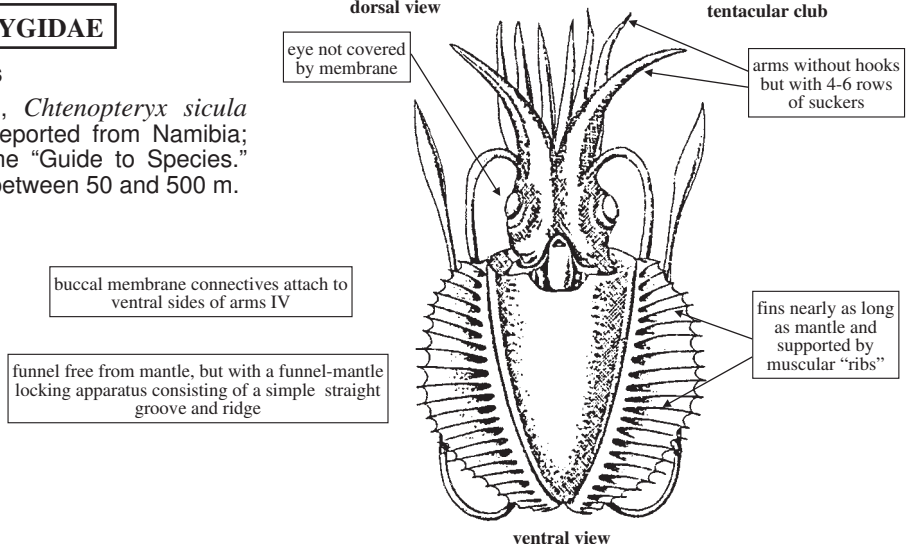
Three species thus far reported from Namibia; *Histioteuthis reversa* (Verrill, 1880) included in the "Guide to Species," and *H. macrohista* Voss, 1969 and *H. meleagroteuthis* (Chun, 1910) not included.

**BATHYTEUTHIDAE****Deepsea squids**

A single species, *Bathyteuthis abyssicola* Hoyle, 1885 thus far reported from Namibia; probably not abundant in sufficient numbers to be of commercial interest and therefore not included in the "Guide to Species." Oceanic, normally found between depths of 700 and 2 000 m.

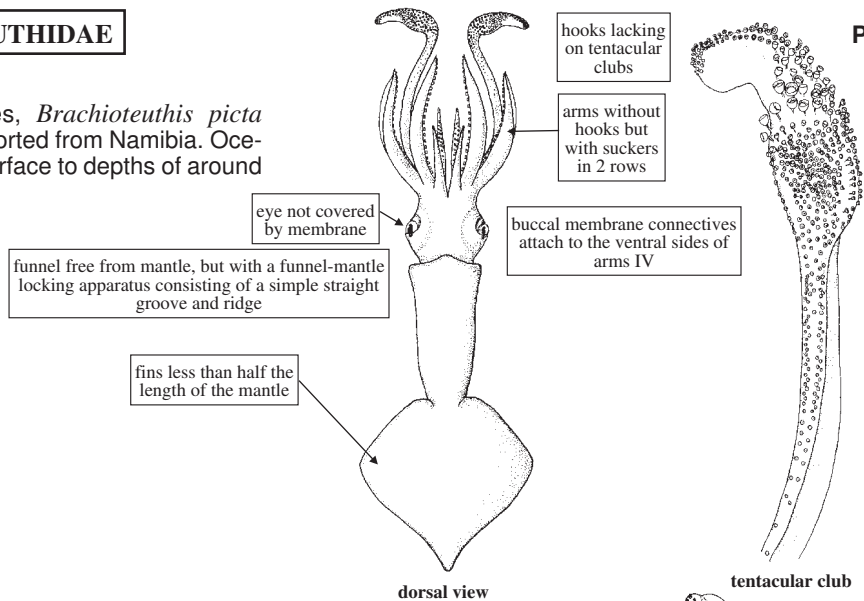
**CHTENOPTERYGIDAE****Combfin squids**

A single species, *Ctenopteryx sicula* (Vérany, 1851), reported from Namibia; not included in the "Guide to Species." Found at depths between 50 and 500 m.



BRACHIOTEUTHIDAE**Arms squids**

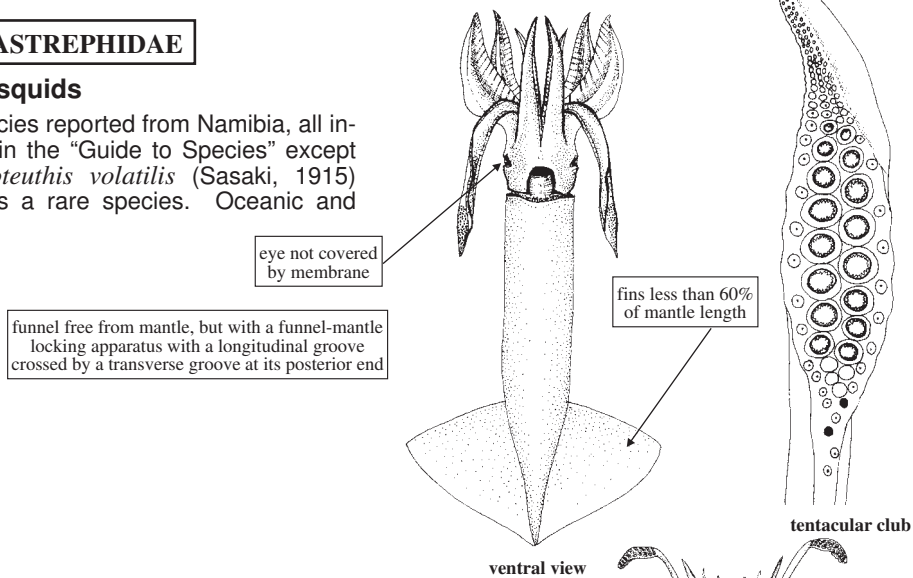
A single species, *Brachioeuthis picta* Chun, 1910, reported from Namibia. Oceanic, from the surface to depths of around 750 m.



Page 64

OMMASTREPHIDAE**Flying squids**

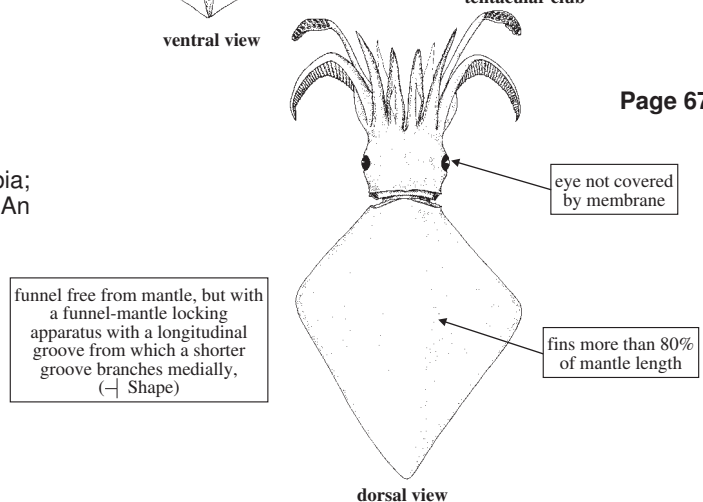
Six species reported from Namibia, all included in the "Guide to Species" except *Ornithoteuthis volatilis* (Sasaki, 1915) which is a rare species. Oceanic and neritic.



Page 64

**THYSANOTEUTHIDAE****Rhomboid squids**

A single species reported from Namibia; included in the "Guide to Species." An oceanic, epipelagic species.

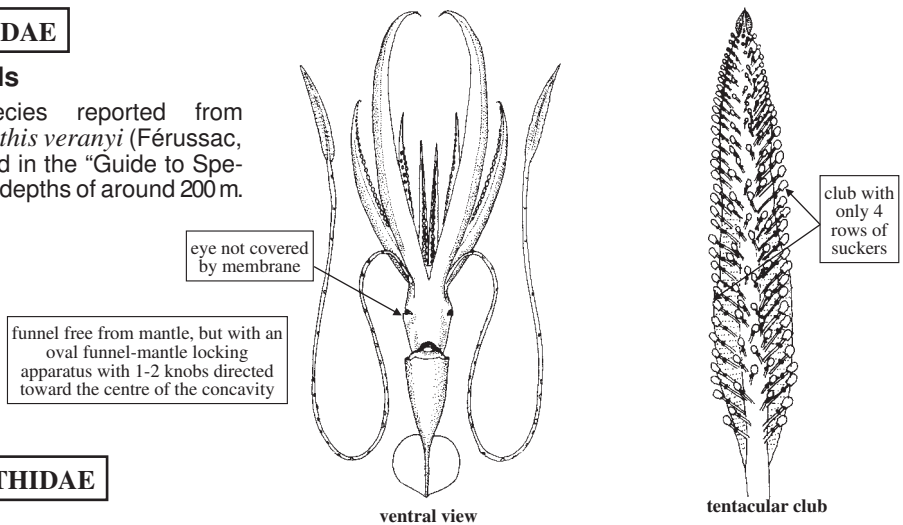


Page 67

CHIOTEUTHIDAE

Longhand squids

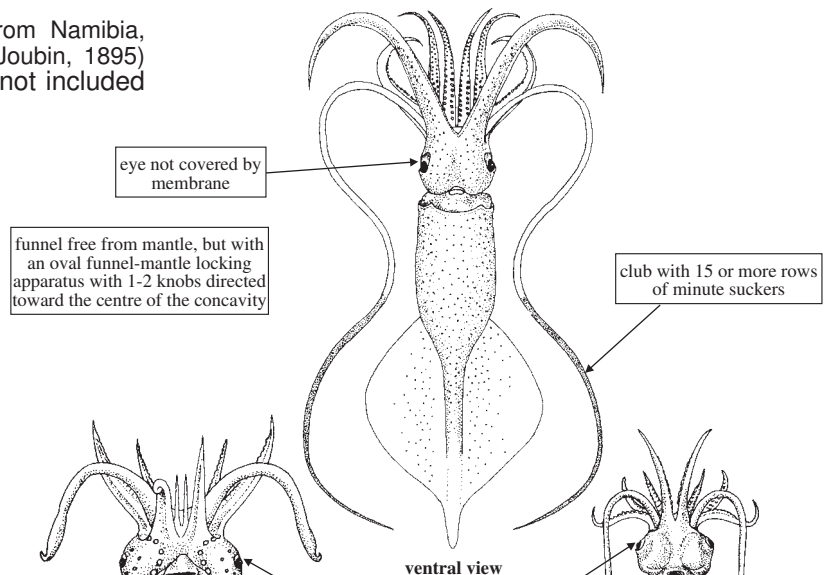
The single species reported from Namibia, *Chiroteuthis veranyi* (Férussac, 1835), not included in the "Guide to Species." Reported at depths of around 200 m.



MASTIGOTEUTHIDAE

Whip squids

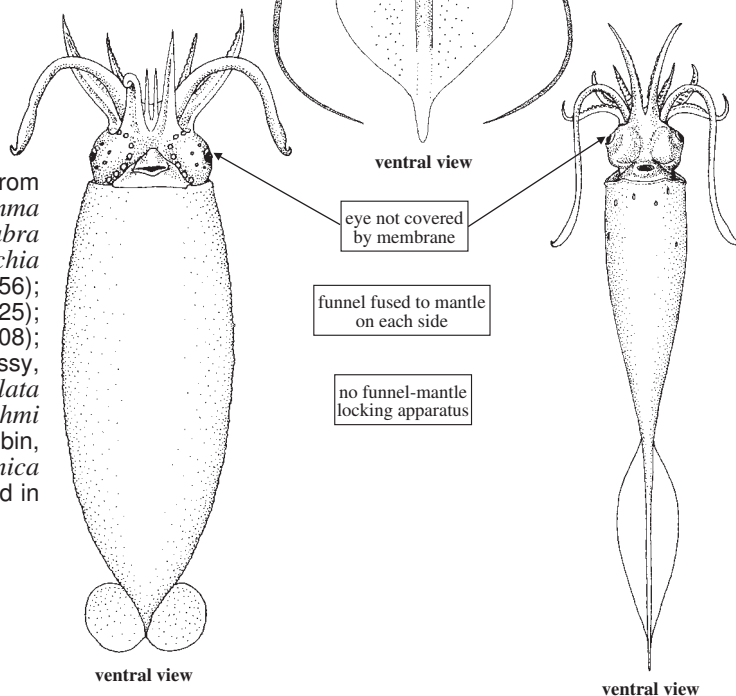
The 2 species reported from Namibia, *Mastigoteuthis grimaldii* (Joubin, 1895) and *Echinoteuthis* sp. are not included in the "Guide to Species."



CRANCHIIDAE

Cranch squids

Ten species reported from Namibia: *Bathothauma lyromma* Chun, 1906; *Cranchia scabra* Leach, 1817; *Liocranchia reinhardtii* (Steenstrup, 1856); *Leachia atlantica* (Degner, 1825); *L. pacifica* (Issel, 1908); *Helicocranchia pfefferi* Massy, 1907; *Teuthowenia maculata* (Leach, 1817); *Galiteuthis suhmi* Hoyle, 1885; *G. armata* Joubin, 1898; *Megalocranchia oceanica* (G. Voss, 1960); none included in the "Guide to Species."



Order **VAMPYROMORPHA - Black Octopus**

Appendages around mouth consisting of 8 arms; suckers stalked; light organs present; colour black. Monotypic, not included in the "Guide to Species."

VAMPYROTEUTHIDAE**Black octopus**

The species *Vampyroteuthis infernalis* Chun, 1903, reported from Namibia; not included in the "Guide to Species."

SUCKERS STALKED

COLOUR BLACK

LIGHT ORGANS
PRESENTAPPENDAGES
AROUND MOUTH
CONSISTING OF 8
ARMS*Vampyroteuthis infernalis*Order **OCTOPODA - Octopuses**

Appendages around mouth consisting of 8 arms; suckers not stalked; light organs absent; colour never black. Ten species in 6 families reported from Namibia.

OPISTHOTEUTHIDAE**Hairy octopus**

The species *Opisthoteuthis agassizi* Verrill, 1883 and *O. rossi* Sanchez and Guerra, 1989, reported from Namibia; not included in the "Guide to Species." Often caught in the deep-water fisheries and referred to as "umbrella squid."

SUCKERS NOT STALKED

COLOUR NEVER BLACK

LIGHT ORGANS
ABSENTAPPENDAGES
AROUND MOUTH
CONSISTING OF 8
ARMS

accessory fins on head

VITRELEDONELLIDAE**Transparent octopus**

The species *Vitreledonella richardi* Joubin, 1918, reported from Namibia; not included in the "Guide to Species." Deep sea, pelagic.

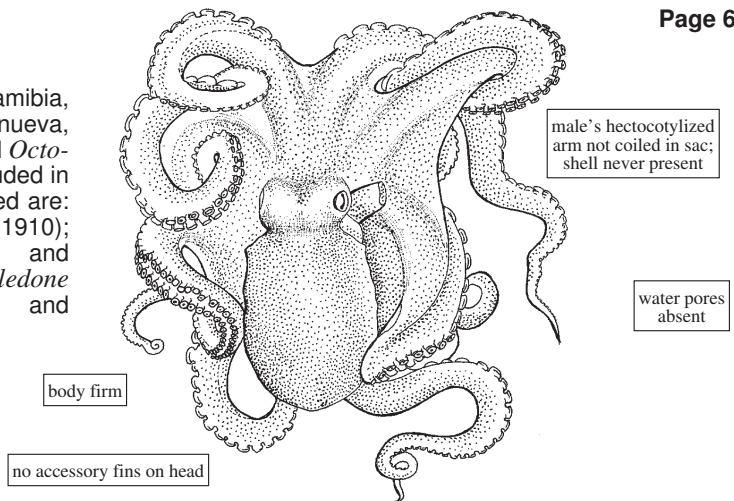
1 row of
suckersbody gelatinous, nearly
transparent

OCTOPODIDAE

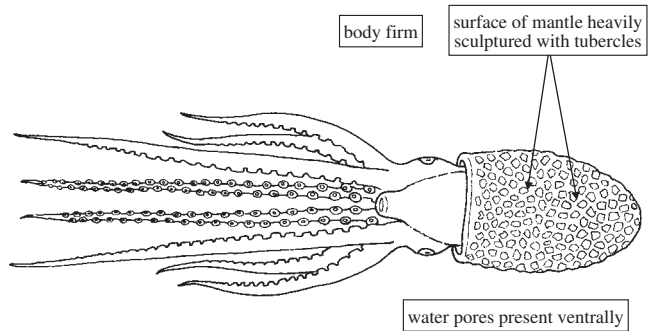
Page 67

Octopuses

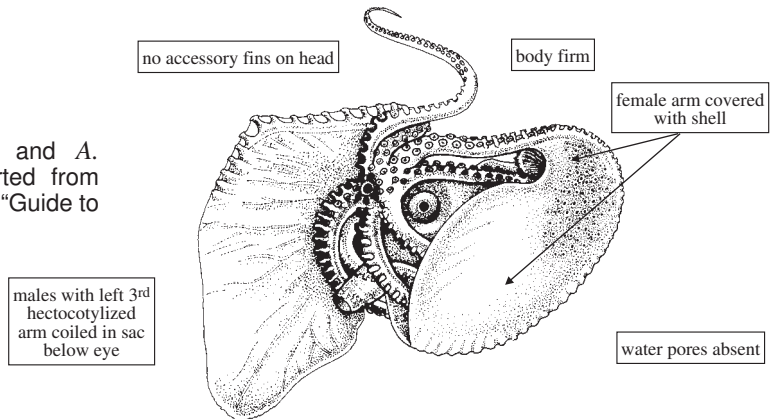
Of the 7 species reported from Namibia, only *Octopus magnificus* Villanueva, Sanchez, and Roeleveld, 1991 and *Octopus vulgaris* Cuvier, 1797 are included in the "Guide to Species"; not included are: *Aphrodoctopus schultzei* (Hoyle, 1910); *Bathypolypus valdiviae* (Chun and Thiele, 1915); *Benthoctopus* sp.; *Eledone thysanophora* Voss, 1962; and *Graneledone* sp.

**OCYTHOIDAE****Ocythoids**

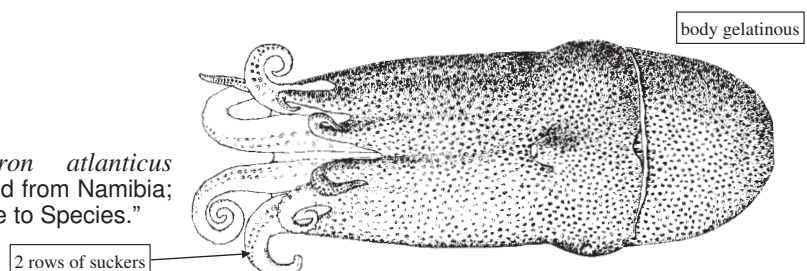
The species *Ocythoe tuberculata* Rafinesque, 1814, reported from Namibia but very rare; not included in the "Guide to Species."

**ARGONAUTIDAE****Argonauts**

The species *Argonauta* sp., and *A. nodosa* Solander, 1786, reported from Namibia; neither included in the "Guide to Species."

**ALLOPOSIDAE****Alloposid squids**

The species *Haliphron atlanticus* Steenstrup, 1861 reported from Namibia; not included in the "Guide to Species."



Sepia australis Quoy and Gaimard, 1832

(plate IX, 67)

SEPIIDAE

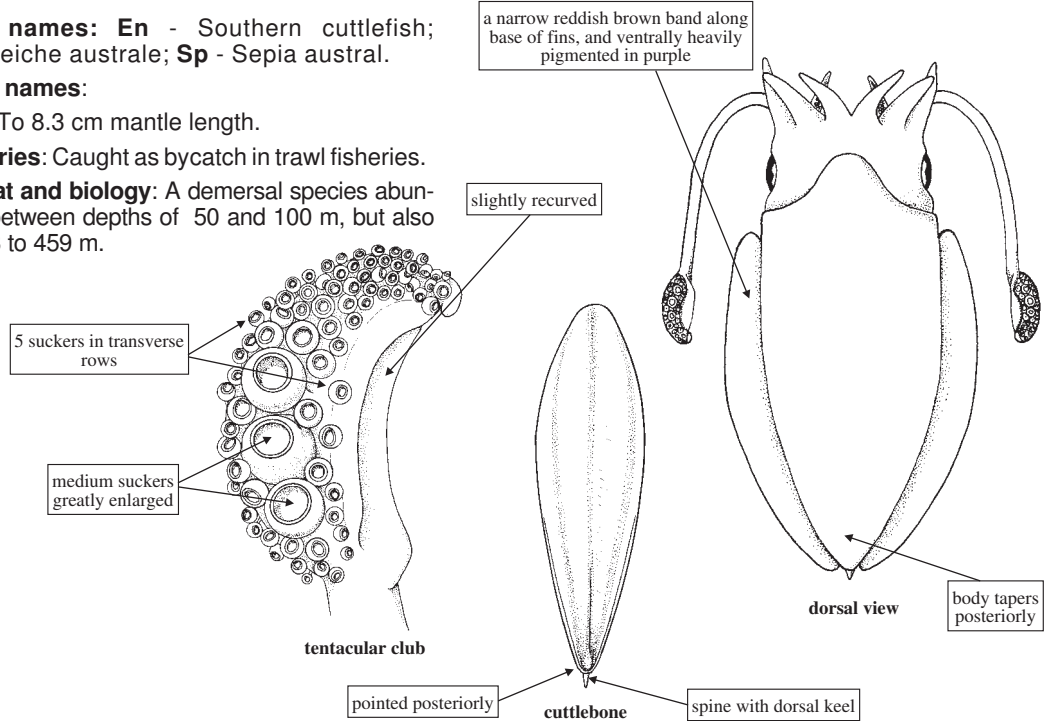
FAO names: **En** - Southern cuttlefish;
Fr - Seiche australe; **Sp** - Sepia austral.

Local names:

Size: To 8.3 cm mantle length.

Fisheries: Caught as bycatch in trawl fisheries.

Habitat and biology: A demersal species abundant between depths of 50 and 100 m, but also from 3 to 459 m.

***Sepia elegans*** Blainville, 1827**SEPIIDAE**

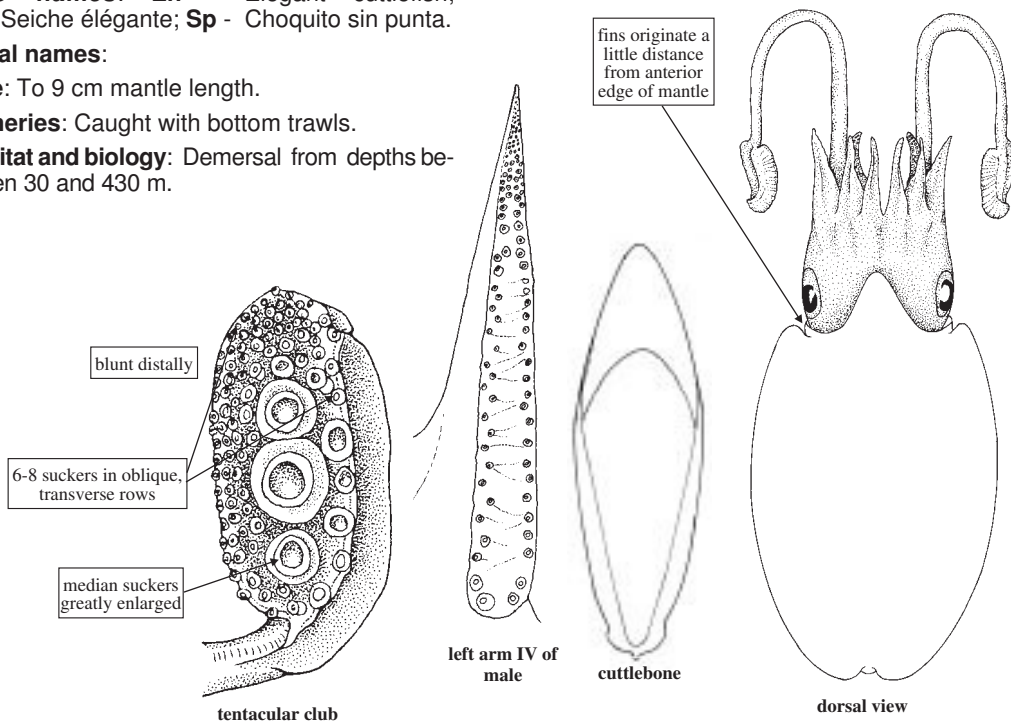
FAO names: **En** - Elegant cuttlefish;
Fr - Seiche élégante; **Sp** - Choquito sin punta.

Local names:

Size: To 9 cm mantle length.

Fisheries: Caught with bottom trawls.

Habitat and biology: Demersal from depths between 30 and 430 m.



***Sepia hieronis* (Robson, 1924)**

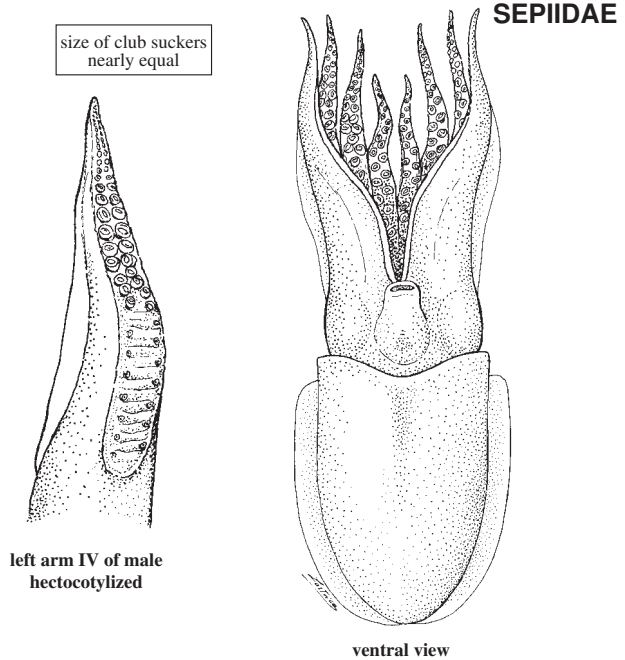
FAO names: **En** - Bullet cuttlefish; **Fr** - Seiche balle; **Sp** - Jibia bala.

Local names:

Size: To 70 cm mantle length.

Fisheries: Taken incidentally in trawls.

Habitat and biology: Demersal in outer shelf and upper slope from depths between 43 and 459 m.

***Sepia vermiculata* Quoy and Gaimard, 1832**

FAO names: **En** - Common vermiculate cuttlefish.

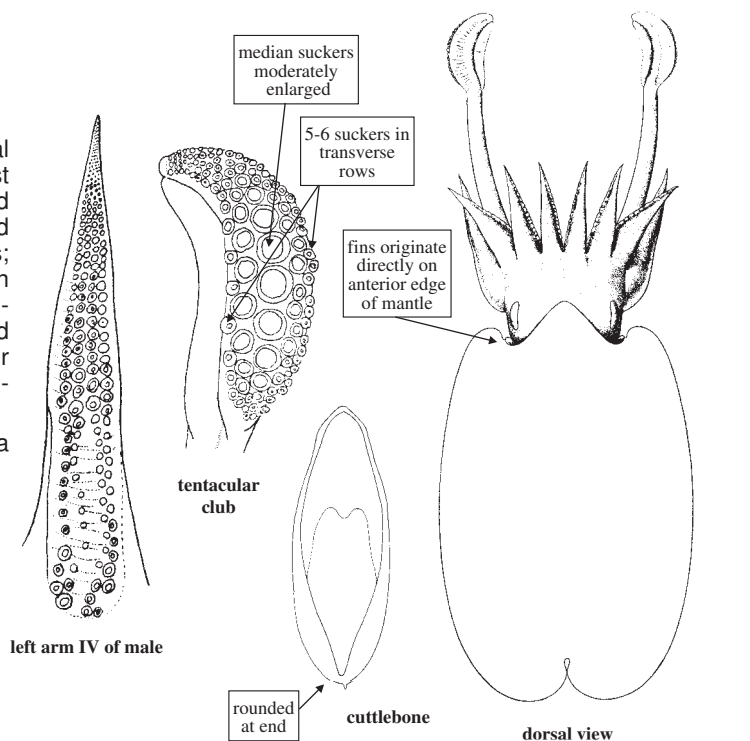
Local names:

Size: To 28.7 cm mantle length.

Fisheries: Caught with bottom trawls.

Habitat and biology: A demersal species of the continental shelf, most abundant at depths between 30 and 100 m, but also found between 0 and 100 m; on sandy to muddy bottoms; spawns in shallow waters. Feeds on molluscs, crabs, shrimps, other cuttlefishes, and juvenile fishes; preyed upon by sharks, sparids, and other demersal fishes; cannibalism is common. Life span is about 2 years.

Remarks: Previously considered a subspecies of *S. officinalis*.



Sepia papillata Quoy and Gaimard, 1832**SEPIIDAE**

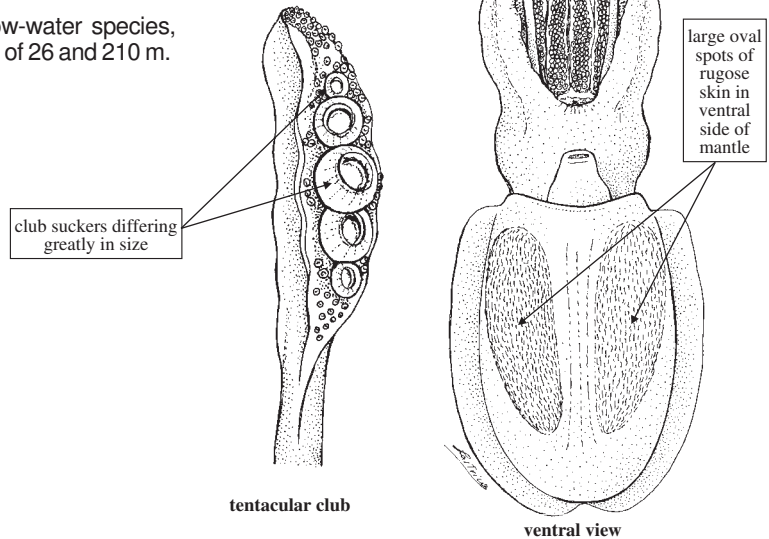
FAO names: **En** - Wrinkled cuttlefish; **Fr** - Seiche ridée; **Sp** - Jibia arrogada.

Local names:

Size: To 13.5 cm mantle length.

Fisheries: None at present.

Habitat and biology: A shallow-water species, over inner shelf between depths of 26 and 210 m.

***Loligo vulgaris reynaudi*** Orbigny, 1834-1841

(plate IX, 68)

LOLIGINIDAE

Synonyms: *Loligo vulgaris* Lamarck, 1798.

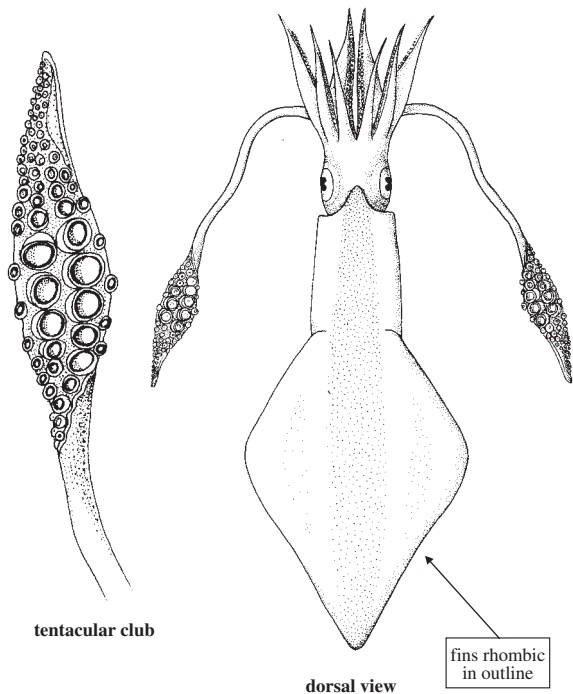
FAO names: **En** - Cape Hope squid; **Fr** - Calmar du Cap; **Sp** - Calamar del Cabo.

Local names:

Size: To 40 cm mantle length.

Fisheries: Caught with bottom and pelagic trawls.

Habitat and biology: Semipelagic, occurs over the continental shelf, to depths of 300 m.



***Lolliguncula mercatoris* Adam, 1941**

FAO names: **En** - Guinean thumbstall squid;
Fr - Calmar doigtier de Guinée; **Sp** - Calamar
 dedal de Guinea.

Local names:

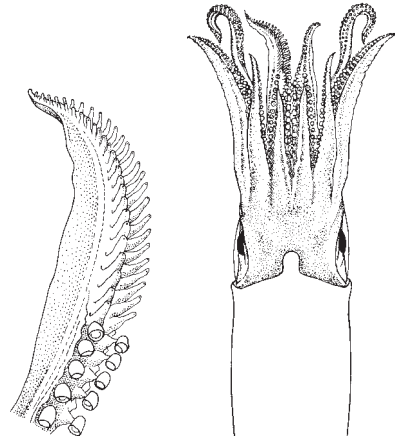
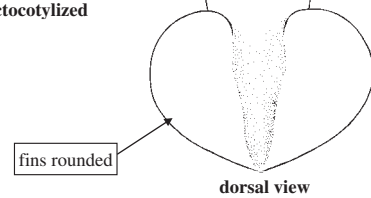
Size: To 5 cm (females) and 3.5 cm (males)
 mantle length.

Fisheries: Taken incidentally in trawls.

Habitat and biology: A shallow-water species,
 taken at depths of less than 50 m on mud and
 sandy mud bottoms, but found down to 100 m.



tentacular club

left arm IV of male
hectocotylized

fins rounded

dorsal view

LOLIGINIDAE***Moroteuthis robsoni* Adam, 1962**

FAO names: **En** - Rugose hooked squid;
Fr - Cornet rugueux; **Sp** - Lurión rugoso.

Local names:

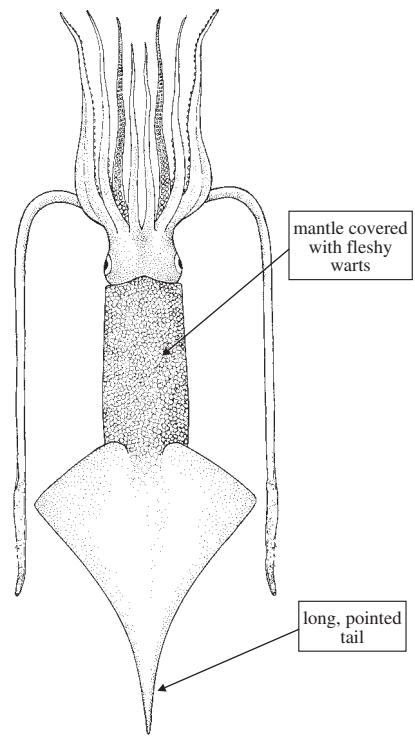
Size: To 75 cm mantle length.

Fisheries: Taken incidentally in trawls. Caught
 often as bycatch in orange roughy fishery.

Habitat and biology: Oceanic, so far recorded
 at depths between 200 and 750 m.



tentacular club

mantle covered
with fleshy
wartslong, pointed
tail

dorsal view

ONYCHOTEUTHIDAE

***Onychoteuthis banksii* (Leach, 1817)**

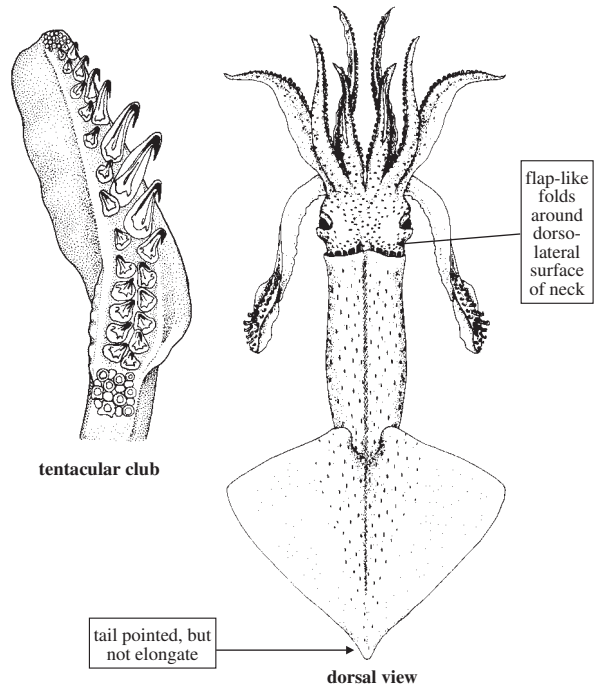
FAO names: **En** - Common clubhook squid;
Fr - Cornet crochu; **Sp** - Luria ganchuda.

Local names:

Size: To 30 cm mantle length.

Fisheries: None at present.

Habitat and biology: An oceanic species found from the surface to a depth of 150 m. The biology of this species is unknown. A species complex that requires taxonomic resolution.

ONYCHOTEUTHIDAE***Histioteuthis reversa* (Verrill, 1880)**

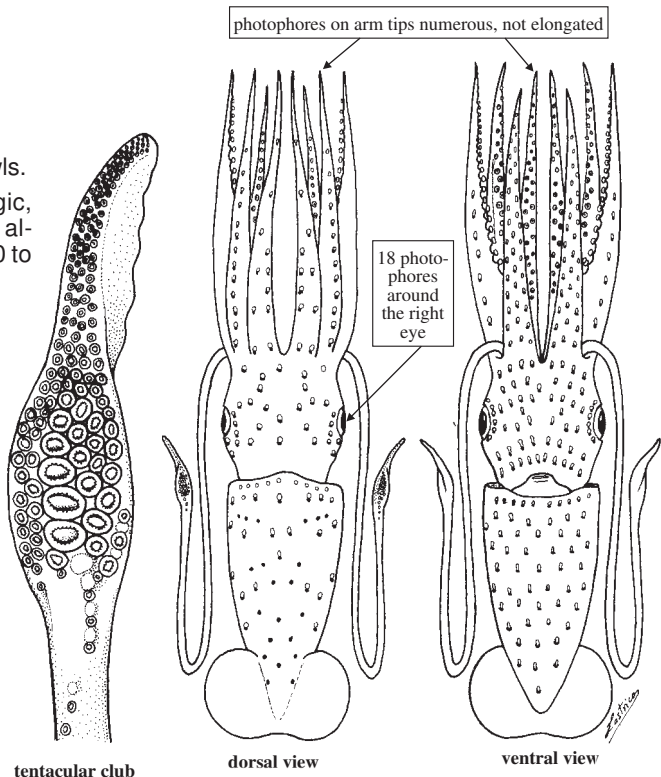
FAO names: **En** - Reverse jewel squid;
Fr - Loutène retournée; **Sp** - Joye luria invertida.

Local names:

Size: To 19 cm mantle length.

Fisheries: Caught incidentally in bottom trawls.

Habitat and biology: Epipelagic, mesopelagic, and at very deep depths, although usually caught at depths around 250 to 350 m.

HISTIOTEUTHIDAE

***Brachoteuthis picta* Chun, 1910**

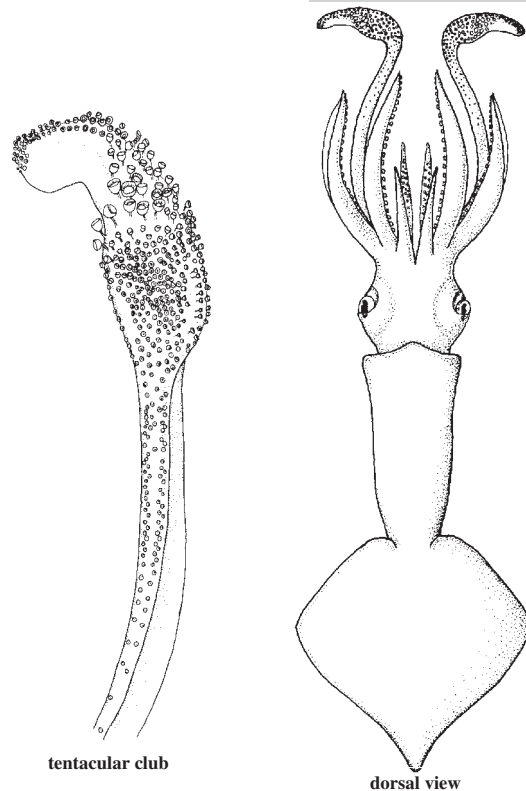
FAO names: **En** - Ornate arm squid;
Fr - Encornet bras courts orné; **Sp** - Braquiluria moteada.

Local names:

Size: To 9 cm mantle length.

Fisheries: Fisheries potential unknown.

Habitat and biology: Oceanic, usually occurring in depths shallower than 500 m but may occur deeper.



tentacular club

dorsal view

***Illex coindetii* (Verany, 1837)**

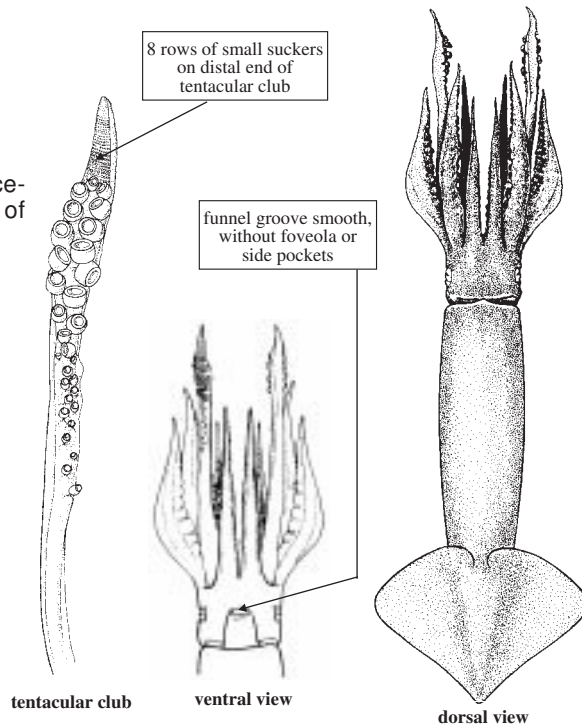
FAO names: **En** - Broadtail shortfin squid;
Fr - Encornet rouge; **Sp** - Pota voladora.

Local names:

Size: To 37 cm mantle length.

Fisheries: Caught with bottom trawls.

Habitat and biology: Semi-demersal, oceanic, and neritic, from the surface to depths of about 1 000 m.



tentacular club

ventral view

dorsal view

OMMASTREPHIDAE

Ommastrephes bartramii* (LeSueur, 1821)*OMMASTREPHIDAE**

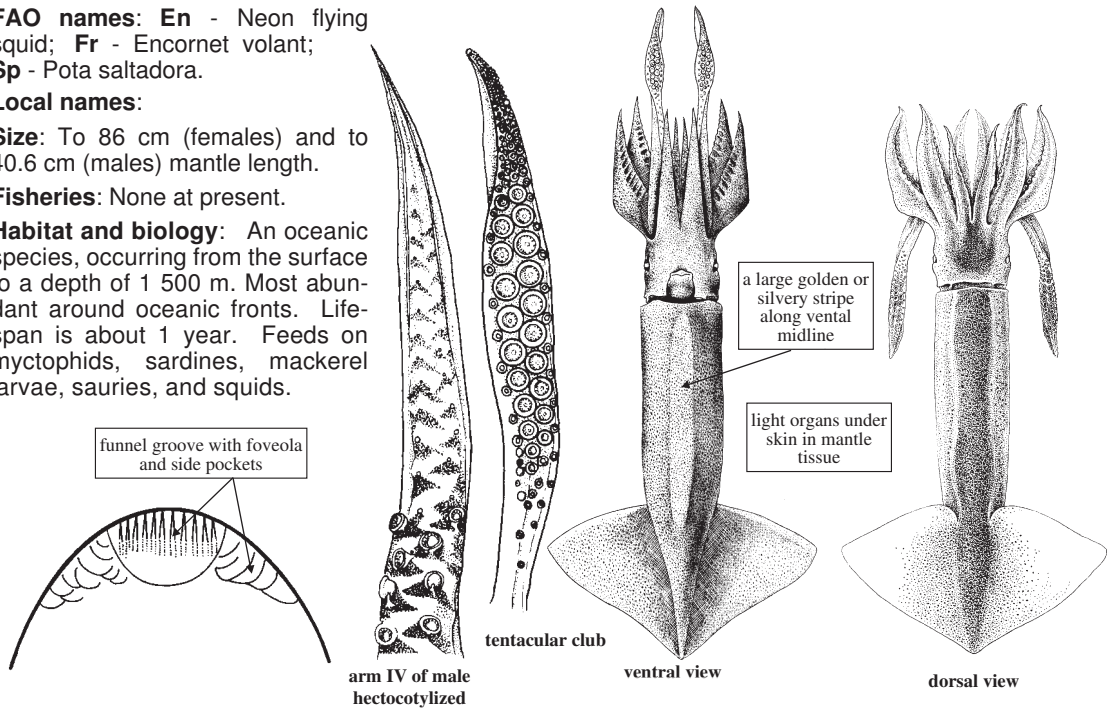
FAO names: **En** - Neon flying squid; **Fr** - Encornet volant; **Sp** - Pota saltadora.

Local names:

Size: To 86 cm (females) and to 40.6 cm (males) mantle length.

Fisheries: None at present.

Habitat and biology: An oceanic species, occurring from the surface to a depth of 1 500 m. Most abundant around oceanic fronts. Life-span is about 1 year. Feeds on myctophids, sardines, mackerel larvae, sauries, and squids.

***Stenoteuthis pteropus* (Steenstrup, 1855)****OMMASTREPHIDAE**

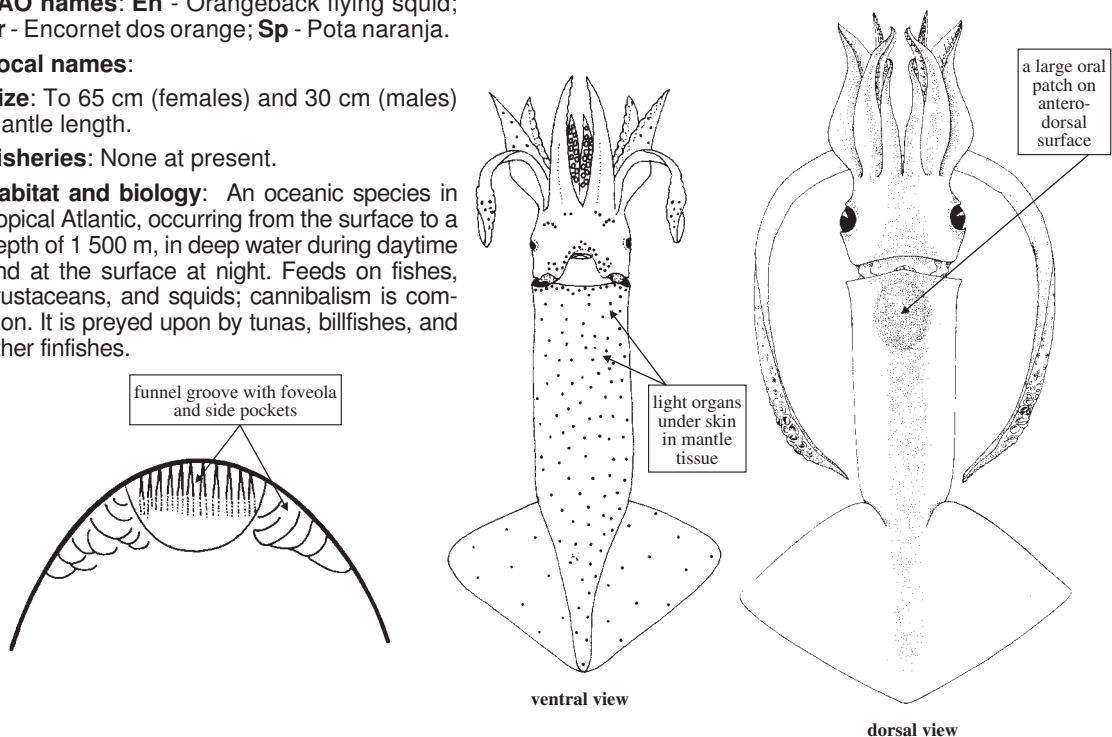
FAO names: **En** - Orangeback flying squid; **Fr** - Encornet dos orange; **Sp** - Pota naranja.

Local names:

Size: To 65 cm (females) and 30 cm (males) mantle length.

Fisheries: None at present.

Habitat and biology: An oceanic species in tropical Atlantic, occurring from the surface to a depth of 1 500 m, in deep water during daytime and at the surface at night. Feeds on fishes, crustaceans, and squids; cannibalism is common. It is preyed upon by tunas, billfishes, and other finfishes.



***Todarodes angolensis* Adam, 1962**

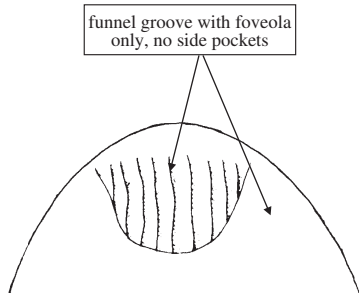
FAO names: **En** - Angola flying squid;
Fr - Toutenon angolais; **Sp** - Pota angolense.

Local names:

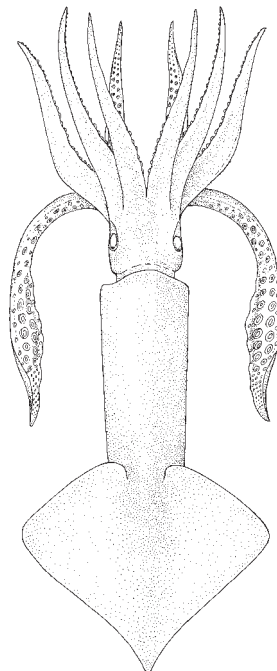
Size: To 41 cm mantle length.

Fisheries: Caught as bycatch in trawl and midwater fisheries.

Habitat and biology: Demersal, in depths of 200 to 1 000 m, migrating to surface at night.



tentacular club



dorsal view

OMMASTREPHIDAE***Todaropsis eblanae* (Ball, 1841)**

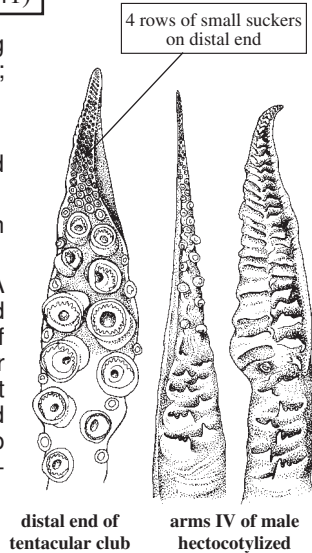
FAO names: **En** - Lesser flying squid; **Fr** - Toutenon souffleur; **Sp** - Pota costera.

Local names:

Size: To 28 cm (females) and 16 cm (males) mantle length.

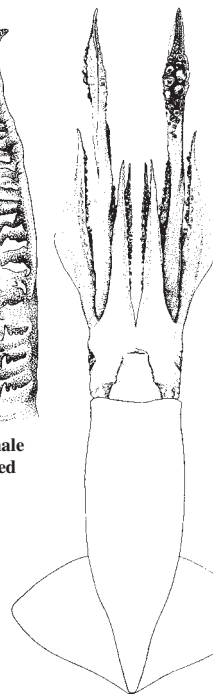
Fisheries: Taken as bycatch in trawl fisheries.

Habitat and biology: A demersal species, associated with sandy to muddy bottoms of the continental shelf and upper slope; from 20 to 700 m, most common between 100 and 400 m; temperatures of 9° to 18°C. Is preyed upon by albacore and sevengill sharks.

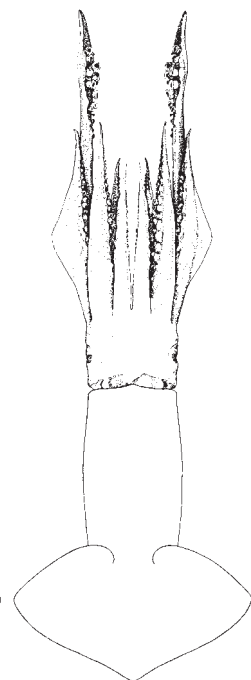


funnel groove smooth, without foveola or side pockets

golden or light brown in colour



ventral view



dorsal view

OMMASTREPHIDAE

Thysanoteuthis rhombus Troschel, 1857

FAO names: **En** - Diamondback squid;
Fr - Chipiloua commun; **Sp** - Chipirón
volantín.

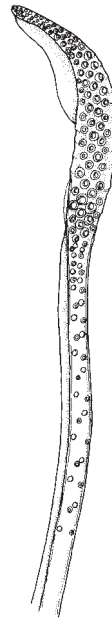
Local names:

Size: To 100 cm mantle length; weight
to 20 kg.

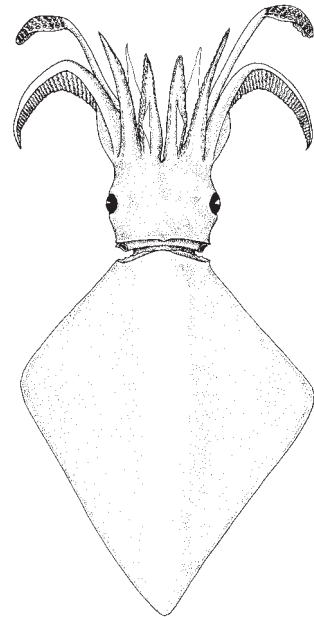
Fisheries: None at present.

Habitat and biology: Epipelagic and
oceanic, usually found in surface
waters. Preyed upon by sperm whales
and blue marlins.

THYSANOTEUTHIDAE



tentacular club



dorsal view



Octopus magnificus Villanueva, Sánchez, and Compagno Roeleveld, 1991

OCTOPODIDAE

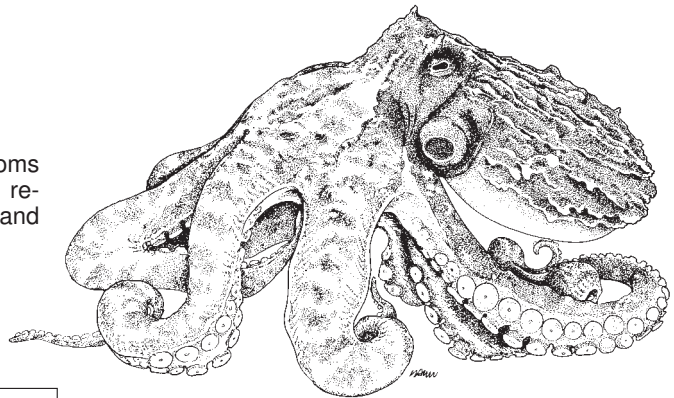
FAO names: **En** - Magnificent octopus.

Local names:

Size: To 36 cm mantle length.

Fisheries: Caught incidentally in trawls.

Habitat and biology: Mostly on sandy bottoms
at depths between 2 and 560 m. So far, re-
ported only from offshore around Lüderitz and
south of Lüderitz.



ligula long, 14-22.2% length of
hectocotylized arm

Octopus "vulgaris" Cuvier, 1797

OCTOPODIDAE

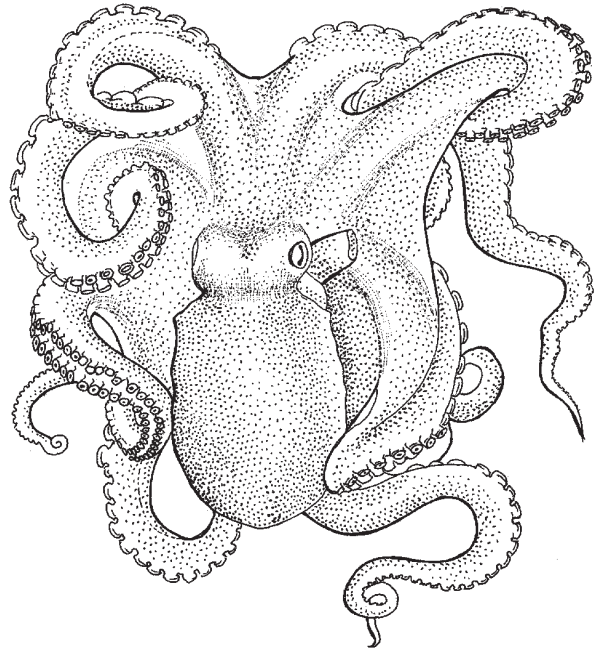
FAO names: **En** - Common octopus;
Fr - Pieuvre; **Sp** - Pulpo común.

Local names:

Size: To 120 cm (females) and 130 cm (males) total length.

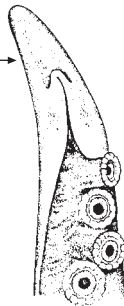
Fisheries: Caught on hook-and-line, with pots, spears, and otter trawls.

Habitat and biology: A benthic species found on various habitats from depths of 0 to 200 m, usually in shallower waters in the summer. Feeds on bivalves, lobsters, and other crustaceans. Preyed upon by albacore (juveniles) and by benthic fishes.



dorsal view

ligula short, 1.2-2.1%
length of
hectocotylized arm



tip of hectocotylized
right arm III of male

JAWLESS FISHES

The hagfishes and their relatives, the lampreys (Order Petromyzontiformes, not found in Namibia), are different from all other living fishes because they lack true jaws. Their internal skeleton is cartilaginous, and they lack true teeth and true vertebrae. These jawless fishes are included in the Superclass Agnatha and are commonly referred to as cyclostomes. All other living fishes (sharks, rays, chimeras, and bony fishes) possess true jaws derived from gill arches and are placed in the Superclass Gnathostomata. Cyclostomes are considered primitive compared to other vertebrates that possess jaws.

Hagfishes are easily recognized from their eel-like body form, apparent lack of eyes (they are small and covered with skin), lack of paired fins, a single nostril surrounded by 2 pairs of barbels, and a mouth with horny teeth and a barbel on each side. They are of no commercial interest but can be a nuisance to fishermen; when caught on hooks they profusely secrete a slime that acts as a fish repellent. The hagfishes comprise a single family, with 2 species reported from Namibia.

Order MYXINIFORMES - Hagfishes

Eptatretus hexatrema (Müller, 1834)

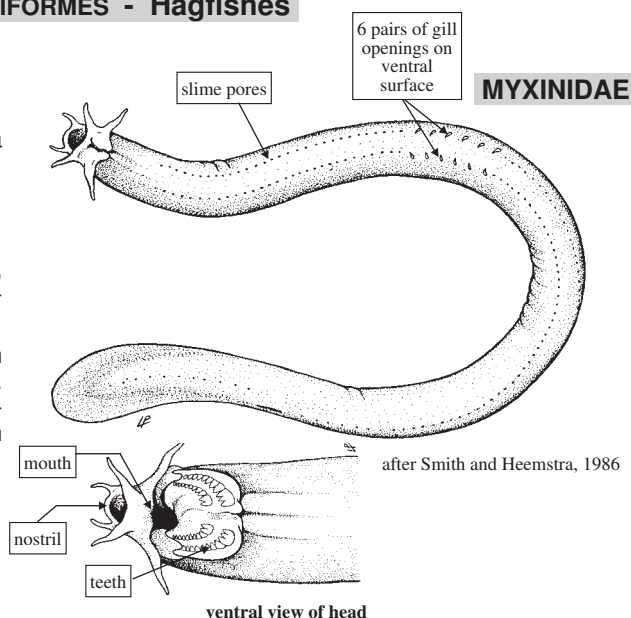
FAO names: **En** - Sixgill hagfish; **Fr** - Myxine à six trous; **Sp** - Pez moco de seis agallas.

Local names: Seskief-slymslang (Ak).

Size: To 80 cm.

Fisheries: Incidentally caught by baited traps, baited hooks, and occasionally caught in bottom trawls.

Habitat and biology: Commonly burrows in muddy bottoms at depths from 20 to 400 m. Feeds mostly by scavenging on dead or disabled fish. Egg capsules with hooks on both ends.



Myxine capensis Regan, 1913

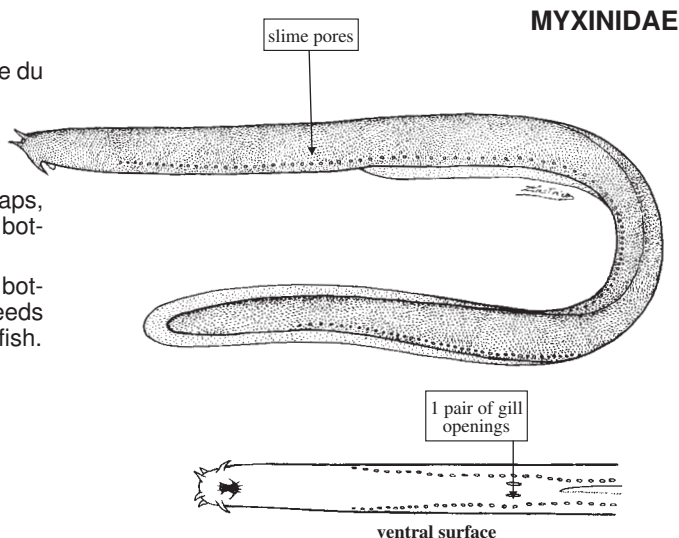
FAO names: **En** - Cape hagfish; **Fr** - Myxine du Cap; **Sp** - Pez moco del Cabo.

Local names:

Size: To 40 cm.

Fisheries: Incidentally caught by baited traps, baited hooks, and occasionally caught in bottom trawls.

Habitat and biology: Burrows in muddy bottoms at depths from 175 to 460 m. Feeds mostly by scavenging on dead or disabled fish.

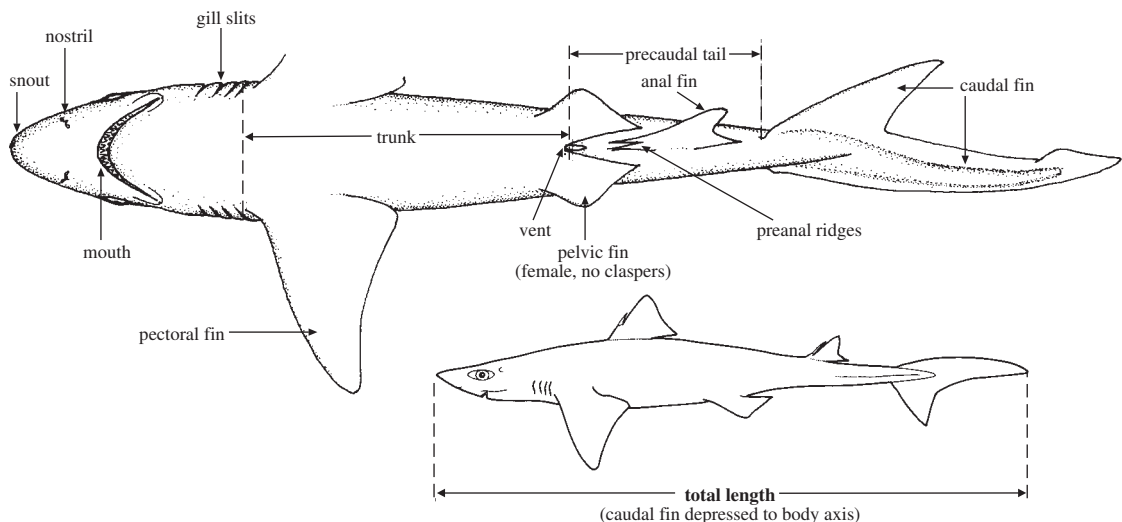
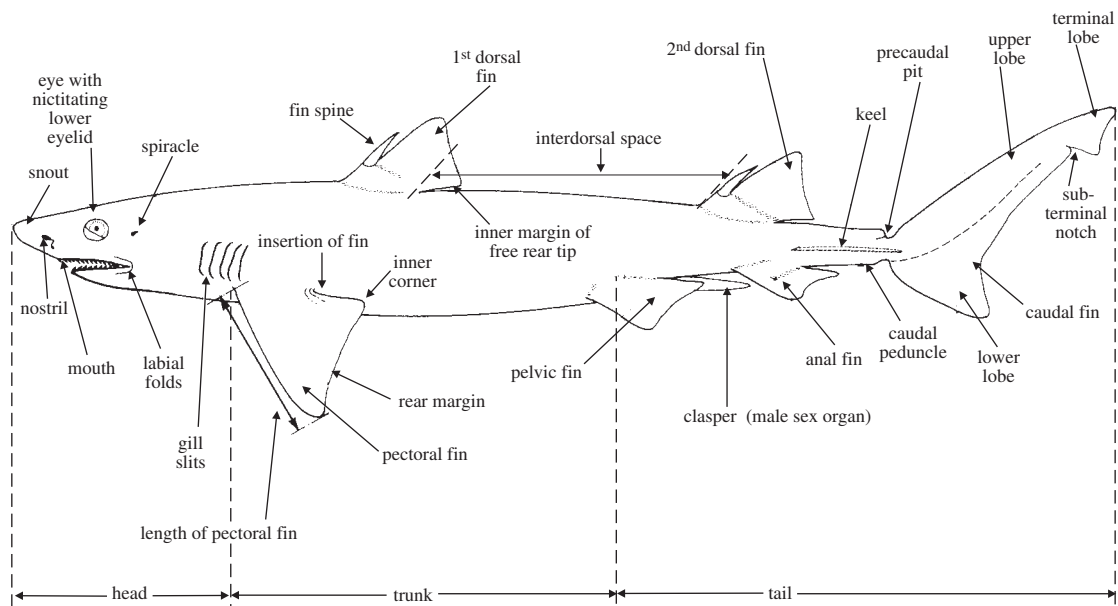


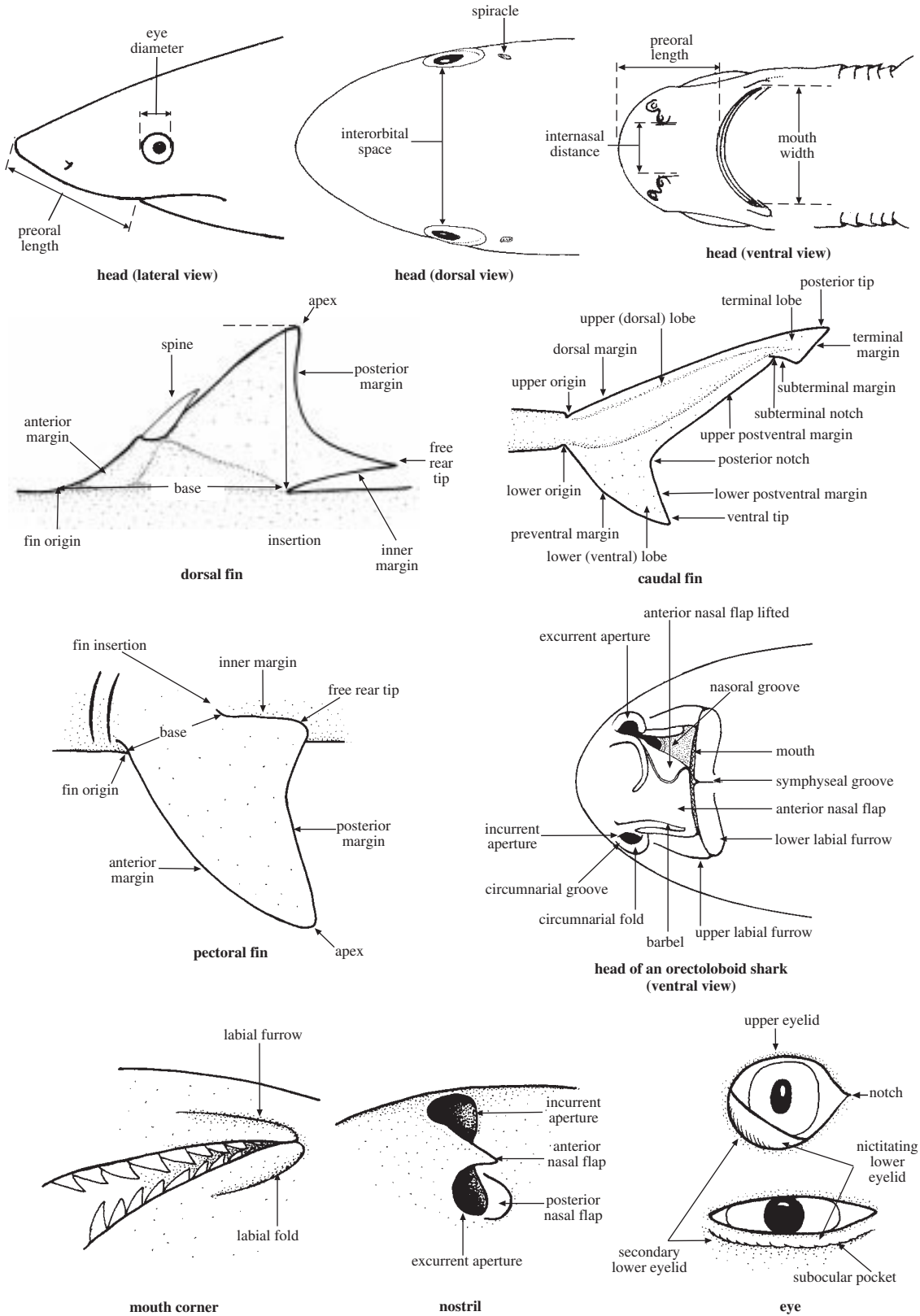
SHARKS

Based mostly on the work of Compagno (1984, 1985, 1989, and 1991), about 46 species in 15 families of sharks are reported from Namibia. All these sharks are likely to be encountered in 1 or more of the bottom trawl, purse seine, longline, line, and pole-and-line fisheries of Namibia. We include all species in the "Guide to Species," except those of questionable records. In addition, we include in the Appendix a checklist of species that includes a list of our sources for species records. This checklist is intended as a working list from which researchers in Namibia may more accurately assess and study their shark resources. All families that are likely to occur are also treated in the "Guide to Orders and Families" and it is recommended that this preliminary guide be consulted before attempting to determine the species, since many important characters listed in the family guide are not repeated in the "Guide to Species."

TECHNICAL TERMS AND MEASUREMENTS

(Straight-line distances)





Order **HEXANCHIFORMES - Cow and Frill Sharks**

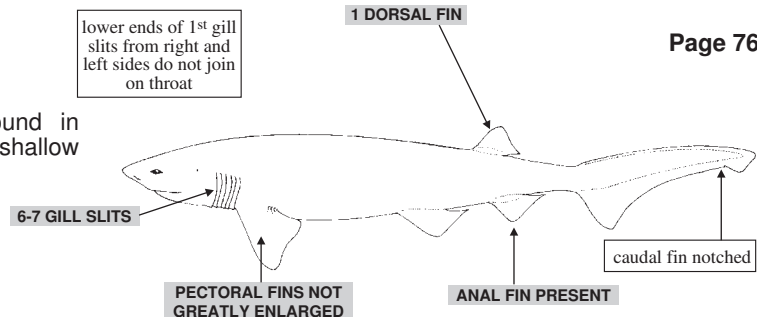
Six or 7 pairs of gill slits and a single dorsal fin; anal fin present. Two families found in Namibia.

HEXANCHIDAE

Page 76

Cow sharks

Three species in 3 genera found in Namibia. Mostly demersal, from shallow depths to 1 800 m. Size to 4.8 m.

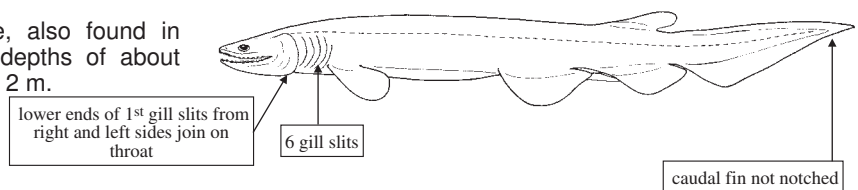


CHLAMYDOSELACHIDAE

Page 77

Frill sharks

One species worldwide, also found in Namibia. Demersal to depths of about 1 300 m. Size to almost 2 m.



Chlamydoselachus anguineus

Order **LAMNIFORMES - Mackerel Sharks**

Five pairs of gill slits; 2 dorsal fins without spines; anal fin present; no movable nictitating eyelid. Four families reported from Namibia.

NO MOVABLE
NICITATING
EYELID

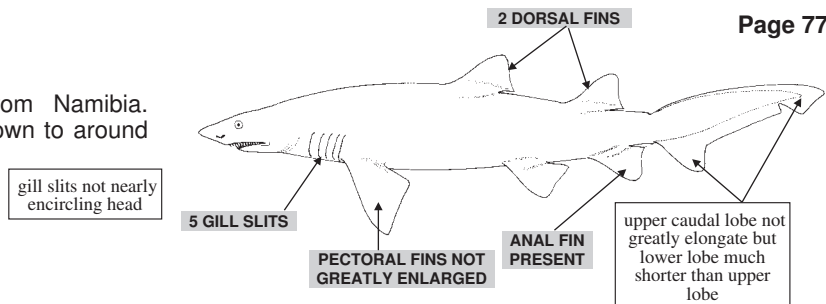


ODONTASPIDIDAE

Page 77

Ragged-tooth sharks

One species reported from Namibia. Neritic, in shallow water down to around 200 m. Size to 3.2 m.



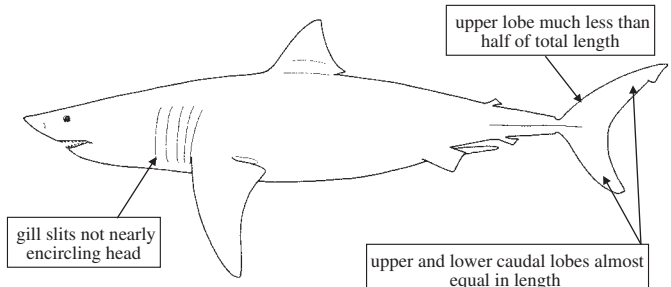
Carcharias taurus

LAMNIDAE

Page 77

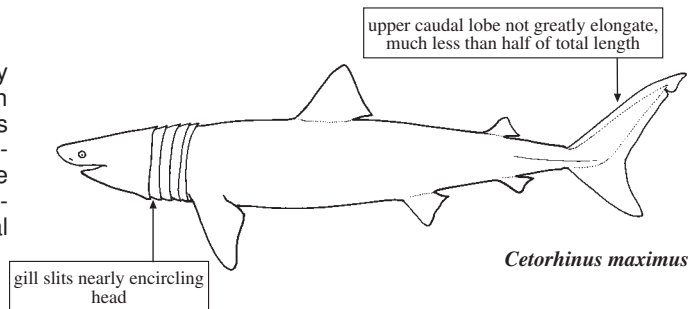
Mackerel sharks

At least 2 species in 2 genera likely to occur in Namibia. Coastal and epipelagic, from the surface to depths of around 1 200 m. Size to 7.1 m.



CETORHINIDAE**Basking sharks**

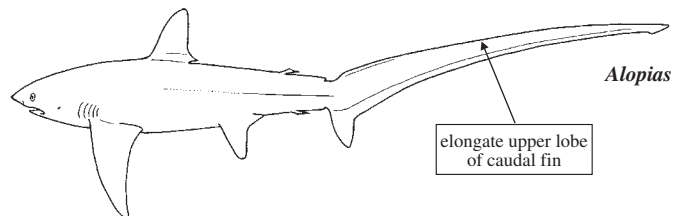
One species worldwide, not yet officially reported from Namibia and not included in the "Guide to Species." However, there is an unofficial report of a specimen entangled in a gillnet in Lüderitz lagoon in the late 1950's (A. Kronitz, personal communication). Coastal and on the continental shelf. A filter feeder. Size to 15 m.

**ALOPHIIDAE**

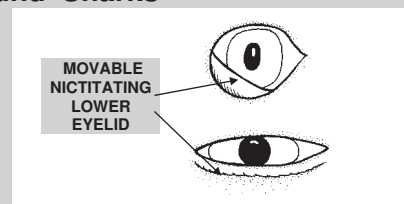
Page 78

Thresher sharks

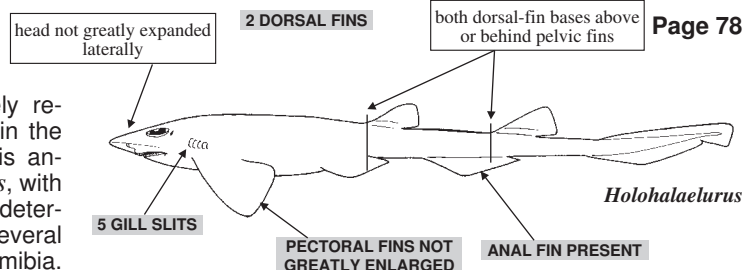
One species reported from Namibia and included in the "Guide to Species." Another species, *Alopias superciliosus*, (Lowe, 1839) is reported from Angola and strays may eventually be found in northern Namibia. Oceanic and coastal, to depths of 500 m. Size to 6.1 m.

**Order CARCHARHINIFORMES - Ground Sharks**

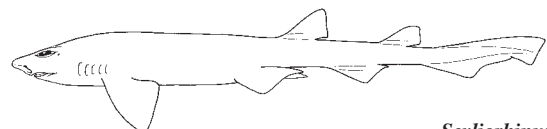
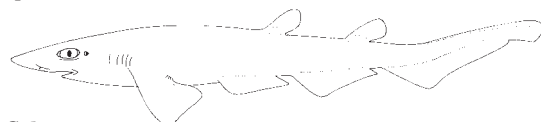
Five pairs of gill slits; 2 dorsal fins without spines; anal fin present; a movable nictitating eyelid. Four or possibly 5 families found in Namibia.

**SCYLIORHINIDAE****Catsharks**

Four species and genera definitely reported from Namibia, all included in the "Guide to Species"; not included is another genus shown here, *Apristurus*, with reports of 2 specimens of an undetermined species off Lüderitz and several other species occurring south of Namibia. Mostly demersal from shallow inshore waters to depths of 700 m. Size to 1.2 m.

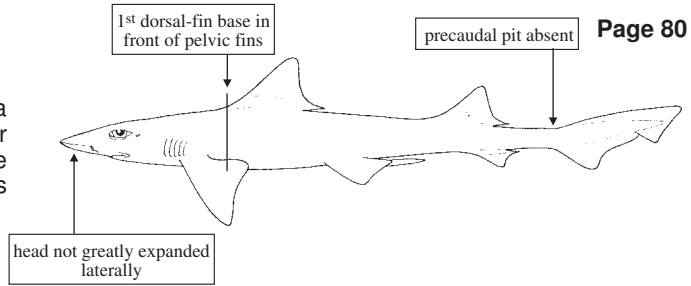


Page 78

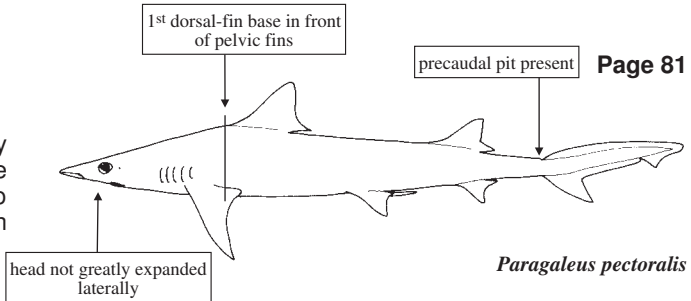
*Apristurus**Scyliorhinus**Galeus**Haploblepharus*

TRIAKIDAE**Hound sharks**

Four species in 3 genera found in Namibia (this family sometimes included under Carcharhinidae), all included in the "Guide to Species." From inshore shallow depths to around 400 m. Size to about 2 m.

**Page 80****HEMIGALEIDAE****Weasel sharks**

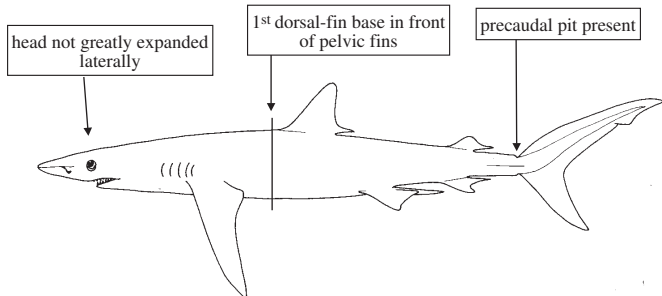
One species found in Namibia (this family sometimes included as a subfamily in the Carcharhinidae), included in the "Guide to Species." On continental shelf to a depth of 100 m. Size to 1.4 m.

**Page 81***Paragaleus pectoralis*

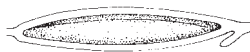
spiral type intestinal valve

CARCHARHINIDAE**Requiem sharks**

Three species in 2 genera listed from Namibia, all included in the "Guide to Species." Neritic and oceanic pelagic to depths of 600 m. Size to 4 m.

**Page 81**

rolled



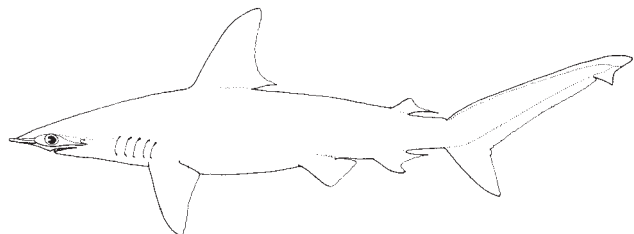
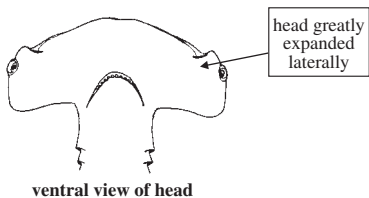
unrolled



scroll type intestinal valve

SPHYRNIDAE**Hammerhead sharks**

Mostly tropical, not yet officially reported from Namibia, but some individuals sighted in Namibia; not included in the "Guide to Species." Neritic and on continental shelf from the surface to depths of 275 m.

*Sphyrna lewini*

Order **SQUALIFORMES - Dogfish Sharks**

Five pairs of gill slits; 2 dorsal fins, usually with spines in front of each fin; pectoral fins not greatly expanded; anal fin absent. Three families found in Namibia.

SQUALIDAE

denticles not conspicuously enlarged

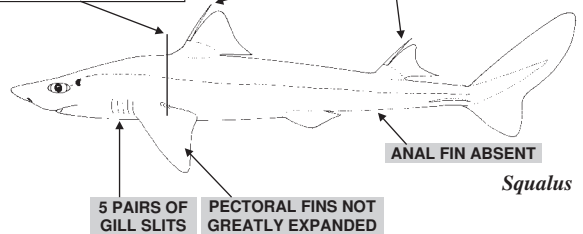
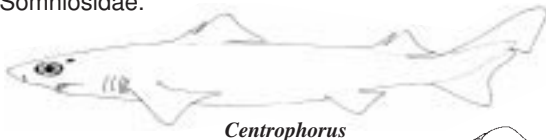
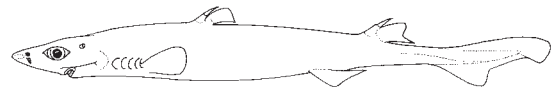
origin of 1st dorsal fin behind front of pectoral fin but in front of pelvic fin

2 DORSAL FINs, USUALLY WITH SPINES IN FRONT OF EACH FIN

Page 82

Dogfishes

Seven genera and around 21 species reported from Namibia, 3 questionable species not included in the "Guide to Species." Demersal and pelagic, to depths of over 2 000 m. Size to 1.6 m. Genera in this family may eventually be recognized in different families as follows: *Centrophorus* and *Deania* in Centrophoridae; *Centroscyllium* and *Etmopterus* in Etmopteridae; and *Scymnodon* in Somniosidae.

*Squalus**Centrophorus**Etmopterus**Deania***OXYNOTIDAE****Rough sharks**

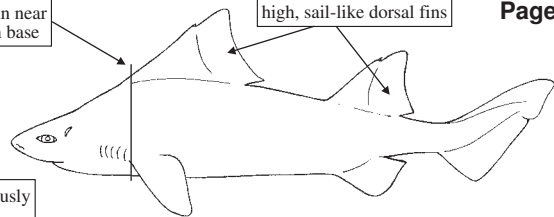
One species in Namibia, included in the "Guide to Species." Demersal from depths of 60 to 660 m. Size to 1.5 m.

origin of 1st dorsal fin near front of pectoral-fin base

high, sail-like dorsal fins

Page 88

skin denticles not conspicuously enlarged

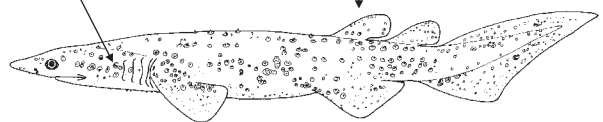
*Oxynotus centrina***ECHINORHINIDAE****Bramble sharks**

One genus with 1 species in Namibia, included in the "Guide to Species." Demersal from shallow depths to 900 m. Size to 3.1 m.

skin denticles conspicuously enlarged

both dorsal fins situated over pelvic fins

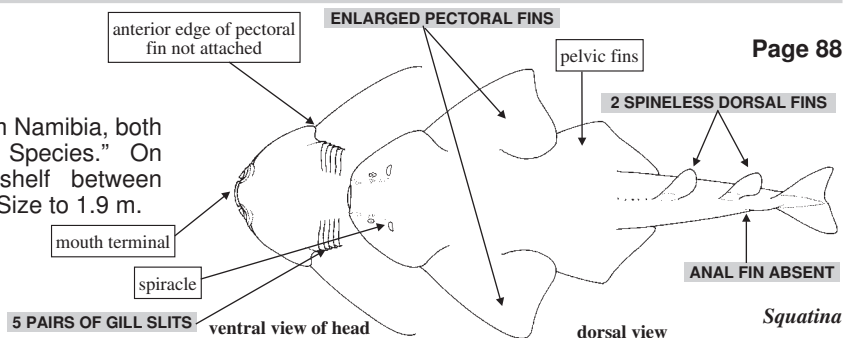
Page 88

*Echinorhinus brucus*Order **SQUATINIFORMES - Angel Sharks**

Five pairs of gill slits; 2 spineless dorsal fins; anal fins absent; pectoral fins greatly expanded along sides of head as a free triangular lobe. One family and genus found in Namibia.

SQUATINIDAE**Angel sharks**

Two species reported from Namibia, both included in the "Guide to Species." On continental slope and shelf between depths of 30 and 500 m. Size to 1.9 m.



Page 88

Squatina

***Heptranchias perlo* Rafinesque, 1810**

(plate IX, 69)

HEXANCHIDAE

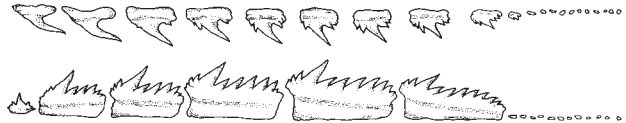
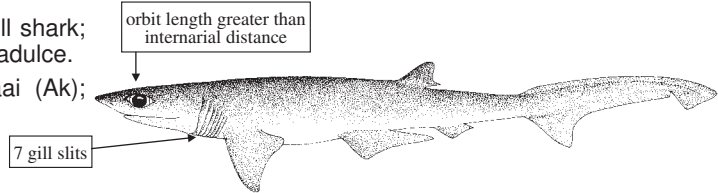
FAO names: **En** - Sharpnose sevengill shark; **Fr** - Requin perlon; **Sp** - Cañabota bocadulce.

Local names: Skerpneus-sewekiefhaai (Ak); Perlon, Spitzkopfsiebenkiemer (Gr).

Size: To about 1.4 m.

Fisheries: None at present.

Habitat and biology: Benthic, from depths of 50 to at least 1 000 m. Feeds on small fishes, squid, and other benthic invertebrates.



upper and lower teeth of left side

***Hexanchus griseus* (Bonnaterre, 1788)**

(plate II, 9)

HEXANCHIDAE

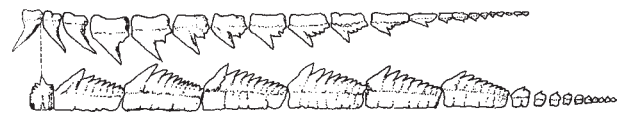
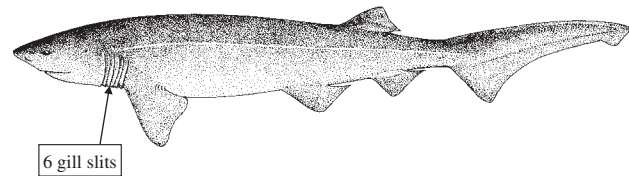
FAO names: **En** - Bluntnose sixgill shark; **Fr** - Requin gris; **Sp** - Cañabota gris.

Local names: Sixgill shark; Seskiefhaai (Ak); Grauhai, Sechskiemer (Gr).

Size: To about 4.8 m.

Fisheries: Taken occasionally with line gear and bottom trawls.

Habitat and biology: Found close to the bottom or pelagic, in the deeper part of the shelf and upper slope to at least 1 800 m. A voracious shark feeding on other sharks, rays, and bony fishes such as hake and pilchard.



upper and lower teeth of left side

Notorynchus cepedianus* Garman, 1884*HEXANCHIDAE**

Synonyms: *Notorynchus pectorosus* (Garman, 1884).

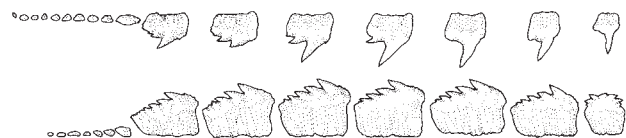
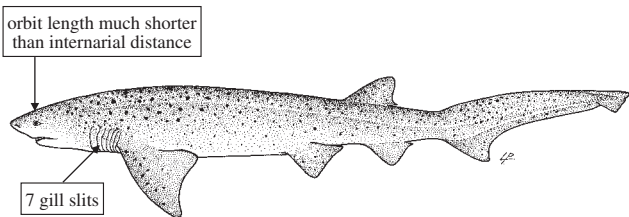
FAO names: **En** - Broadnose sevengill shark; **Fr** - Platnez; **Sp** - Cañabota gata.

Local names: Platneus-sewekiefhaai (Ak).

Size: To at least 2.9 m.

Fisheries: Caught with line gear and by sport anglers.

Habitat and biology: A benthic, neritic species, found from near the shore to about a depth of 50 m. Sexual maturity is attained at 150 to 180 cm for males and 190 to 210 cm for females. Feeds on a wide variety of sharks, rays, and bony fishes. Aggressive, reported as dangerous to people.



upper and lower teeth of right side

***Chlamydoselachus anguineus* Garman, 1884**

(plate IX, 70)

CHLAMYDOSELACHIDAE

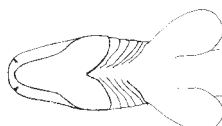
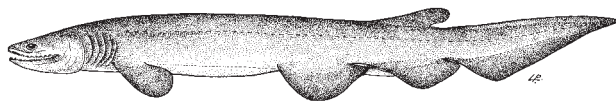
FAO names: **En** - Frilled shark; **Fr** - Requin lezard; **Sp** - Tiburón anguila.

Local names: Frill shark; Frilletjieshaai (Ak); Kragenhai, Krausenhai (Gr).

Size: To about 2 m.

Fisheries: Taken incidentally in bottom trawls and bottom longlines.

Habitat and biology: Benthic, on the outer continental shelves and upper slopes, at depths between 120 and 1 300 m.



ventral view of head



upper and lower tooth

Carcharias taurus* Rafinesque, 1810*ODONTASPIDIDAE**

Synonyms: *Eugomphodus taurus* (Rafinesque, 1810).

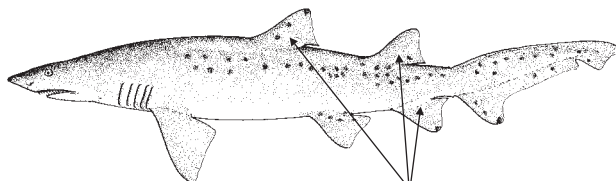
FAO names: **En** - Sandtiger shark; **Fr** - Requin taureau; **Sp** - Toro bacota.

Local names:

Size: Up to 3.2 m.

Fisheries: Caught occasionally by sport anglers. Flesh highly appreciated in Japan.

Habitat and biology: Coastal, from the surf zone and shallow bays to the deeper continental shelf, near the bottom, in midwater or at the surface. Feeds on various bony fishes, sharks, rays, squid, crabs, and lobsters. Considered as harmless for man.



both dorsal fins and anal fin equally large and broad-based



ventral view of head



upper and lower teeth from left side

Carcharodon carcharias* (Linnaeus, 1758)*LAMNIDAE**

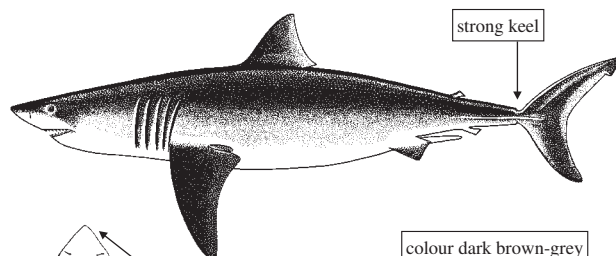
FAO names: **En** - Great white shark; **Fr** - Grand requin blanc; **Sp** - Jaquetón blanco.

Local names: Witdoodshaai (Ak); Menschenhai, Weißhai (Gr).

Size: To 7.1 m total length.

Fisheries: So far not caught in Namibia.

Habitat and biology: Primarily coastal, off continental as well as insular shelves, from the surface to depths of more than 1 200 m; often close inshore, penetrating into shallow bays. A very active, swift, and powerful shark, usually feared as the most dangerous of living sharks. Feeds on bony fishes, sharks, rays, seals, dolphins, porpoises, sea birds, carrion, and a number of invertebrates such as squid, octopus, and crabs. Ovoviviparous, bears 7 to 9 young. Worldwide it is considered rare, and in Namibia it is classified as a "Specially Protected Animal."



strong keel



ventral view of head

snout short and conical

colour dark brown-grey to black on back, abruptly white on belly



upper and lower teeth from left side

***Isurus oxyrinchus* Rafinesque, 1809**

(plate II, 10)

LAMNIDAE

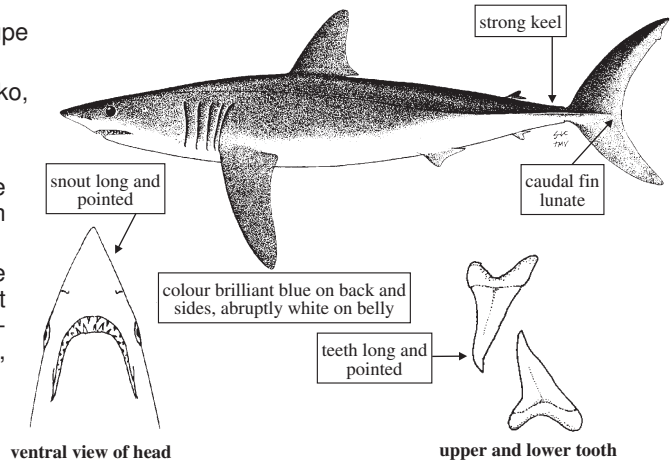
FAO names: **En** - Shortfin mako; **Fr** - Taupe bleu; **Sp** - Marrajo dientuso.

Local names: Kortvin-mako (Ak); Mako, Makrelenhai (Gr).

Size: To at least 4 m.

Fisheries: Caught mainly in tuna longline fisheries and occasionally by the swordfish fishery.

Habitat and biology: An extremely active species, mainly epipelagic but also found at depths of 100 to 150 m. Feeds on a wide variety of prey, including scombrids, carangids, sharks, and cephalopods.

***Alopias vulpinus* (Bonnaterre, 1788)****ALOPIIDAE**

FAO names: **En** - Thresher shark; **Fr** - Renard; **Sp** - Zorro.

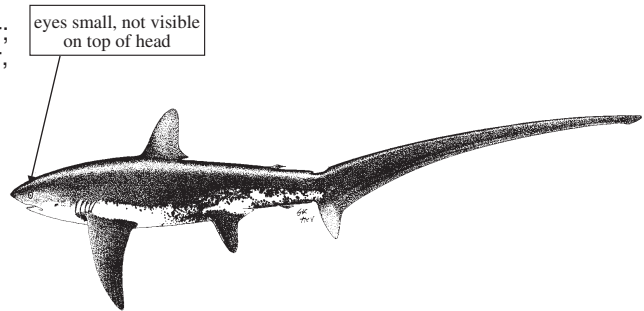
Local names: Thintail (Ak); thresher, Fynstert-sambokhaai (Ak); Drescher, Drescherhai, Fuchshai (Gr).

Size: To at least 6 m.

Fisheries: Tuna longlines. Caught occasionally in midwater trawls.

Habitat and biology: On the continental shelf, in inshore waters, as well as far from the coast, from the surface to a depth of 350 m. Feeds on schooling fish, squid, and pelagic crustaceans herded by the tail.

Remarks: *Alopias superciliosus* occurs in Angola and may also eventually be reported from Namibia. It can be distinguished from *A. vulpinus* by the eyes which are larger and extend onto the dorsal surface of the head.

***Galeus polli* Cadenat, 1959**

(plate II, 11)

SCYLIORHINIDAE

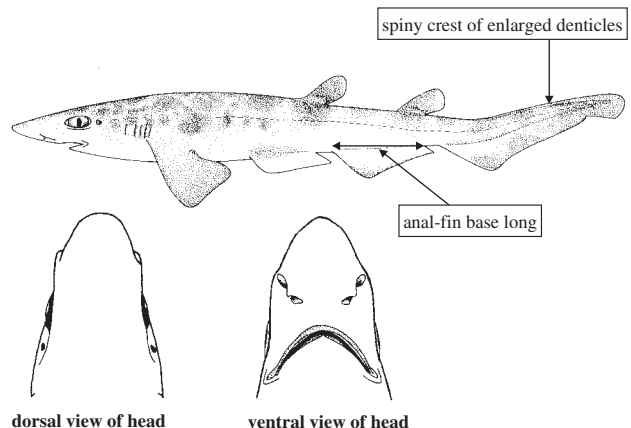
FAO names: **En** - African sawtail catshark; **Fr** - Chien rape; **Sp** - Pintarroja africana.

Local names:

Size: To about 40 cm.

Fisheries: Caught frequently in bottom trawls.

Habitat and biology: A bottom dwelling shark, found on the upper continental shelf from depths of 200 to 700 m, associated with hakes, grenadiers, rockfish, and squid.



***Haploblepharus pictus* (Müller and Henle, 1838)**

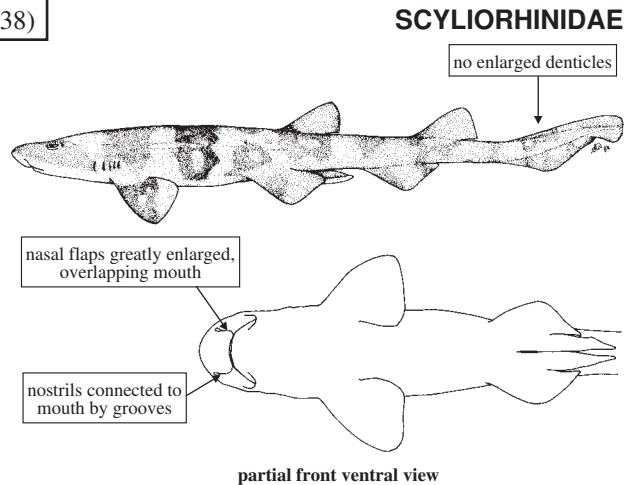
FAO names: **En** - Dark shyshark; **Fr** - Roussette sombre; **Sp** - Alitán oscuro.

Local names: Donker skaamoog (Ak).

Size: To about 55 cm.

Fisheries: Occasionally caught by shore anglers.

Habitat and biology: An inshore, bottom-dwelling shark, most common in sandy areas but also in rocky areas. Feeds on small bottom-dwelling fish, crustaceans, and cephalopods.

***Holohalaelurus regani* (Gilchrist, 1922)**

FAO names: **En** - Izak catshark; **Fr** - Holbiche isard; **Sp** - Pejegato reticulado.

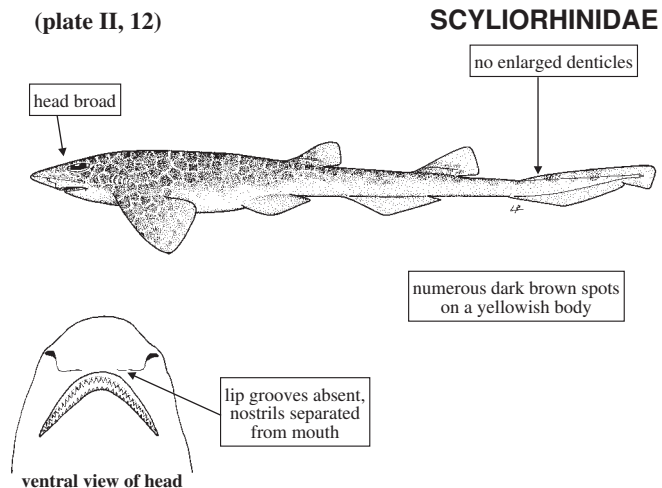
Local names: Izak; Izak (Ak).

Size: To about 60 cm.

Fisheries: Occasionally taken in commercial bottom trawlers as bycatch.

Habitat and biology: A bottom-dwelling shark of the deeper continental shelf and upper slope, recorded from depths of about 150 to over 700 m but mostly south of Lüderitz. Feeds on small bony fish, crustaceans, and cephalopods. Scavenges on carrion.

(plate II, 12)

***Scyliorhinus capensis* (Smith, 1838)**

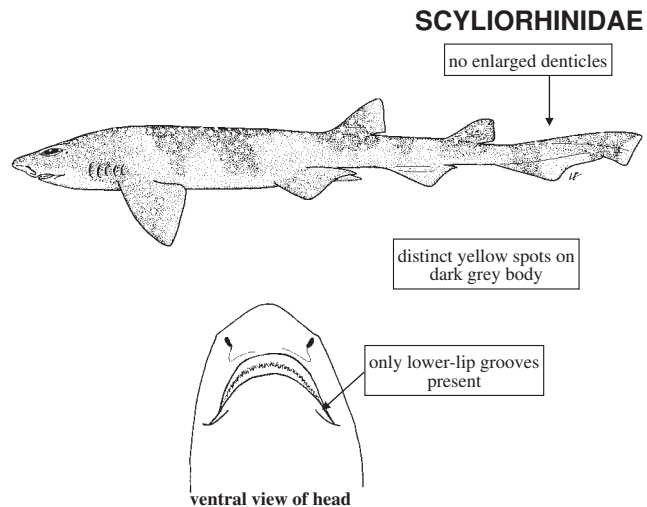
FAO names: **En** - Yellowspotted catshark; **Fr** - Roussette à taches jaunes; **Sp** - Alitán de manchas amarillas.

Local names: Geelspikkel-kathaai (Ak).

Size: To 1.2 m.

Fisheries: Rarely caught in bottom trawls.

Habitat and biology: A demersal species, found between depths of 30 and 420 m mostly south of Lüderitz. Feeds commonly on small bony fishes, crustaceans, and cephalopods.



***Galeorhinus galeus* (Linnaeus, 1758)**

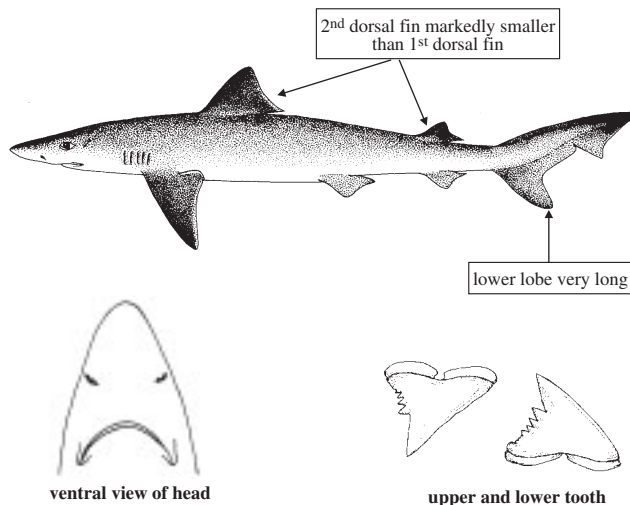
FAO names: En - Tope shark; Fr - Requin-hâ; Sp - Cazón.

Local names: Soupfin shark; Sopvinhaai (Ak); Biethai, Hundshai (Gr).

Size: To about 2 m.

Fisheries: Caught in bottom and pelagic trawls as well as with longlines.

Habitat and biology: A pelagic species of the continental shelf and upper slope, also occurring near the bottom at depths of 2 to 470 m. Feeds on a wide variety of pelagic and demersal bony fishes such as pilchards, anchovies, croakers, and breams, and bottom invertebrates such as crabs, shrimps, lobsters, annelid worms, and sea snails. Sexual maturity is reached at about 10 years and at about 130 cm.

**TRIAKIDAE*****Mustelus mustelus* (Linnaeus, 1758)**

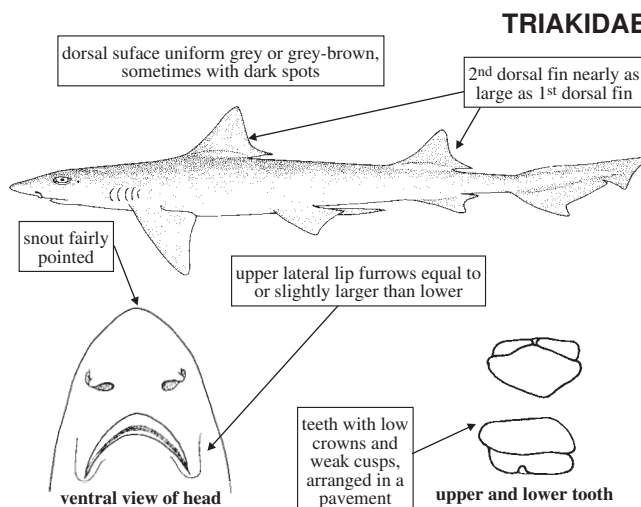
FAO names: En - Smooth-hound; Fr - Emissole lisse; Sp - Musola.

Local names: Hondhaai (Ak); Südlicher Glatthai, Mittelmeer-Glatthai (Gr).

Size: To about 1.7 m.

Fisheries: Caught in bottom trawls. Commonly taken by shore anglers.

Habitat and biology: A bottom-living species, sometimes also found in midwaters, mainly on the continental shelf but ranging to depths of at least 350 m, mostly in waters shallower than 50 m. Feeds mainly on crustaceans but also on cephalopods, bony fishes, and carrion.

**TRIAKIDAE*****Mustelus palumbes* Smith, 1957****(plate II, 13)**

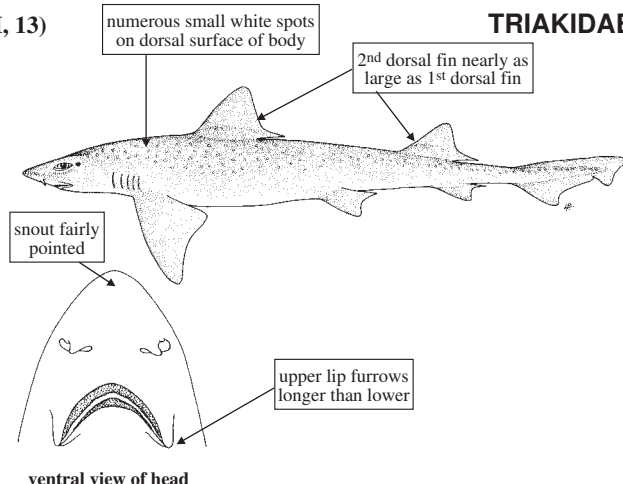
FAO names: En - Whitespotted smooth-hound; Fr - Emissole palombe; Sp - Musola paloma.

Local names: Witkol-houndhaai (Ak).

Size: To 1.2 m.

Fisheries: Occasionally caught by bottom trawlers.

Habitat and biology: A demersal shark, occurring from the intertidal region to at least a depth of 360 m, on sand and gravel bottoms. Feeds on crabs and other invertebrates.

**TRIAKIDAE**

***Triakis megalopterus* (Smith, 1849)**

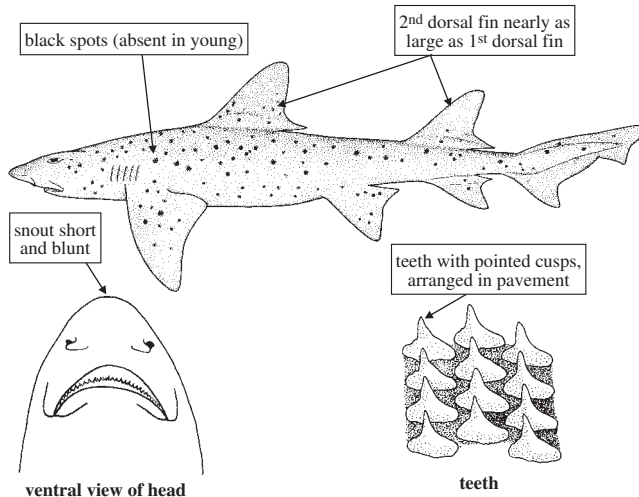
FAO names: **En** - Sharptooth houndshark; **Fr** - Virli dentu; **Sp** - Tollo dentudo.

Local names: Spotted gullyshark; Gespikkelde sloothaa (Ak).

Size: Attains 1.6 m.

Fisheries: Commonly caught by shore anglers.

Habitat and biology: An inshore, bottom-dwelling shark, mainly on sandy and rock bottoms to a depth of about 50 m. Feeds on crabs, fishes, and small sharks.

**TRIAKIDAE*****Paragaleus pectoralis* (Garman, 1906)**

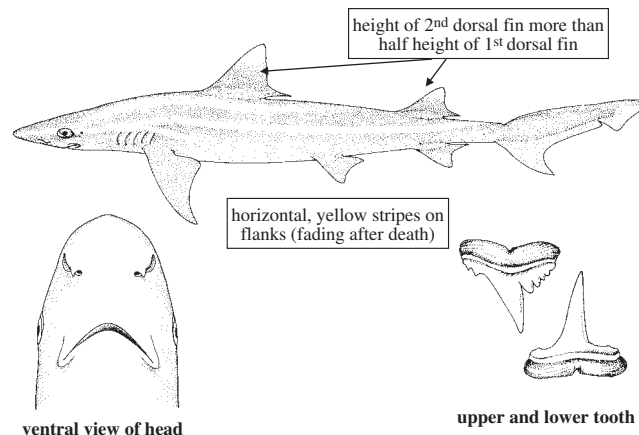
FAO names: **En** - Atlantic weasel shark; **Fr** - Milandre jaune; **Sp** - Tiburón comadiza.

Local names: Atlantiese weselhaai (Ak).

Size: To about 1.4 m.

Fisheries: A common catch of the industrial and artisanal fisheries of the Central Eastern Atlantic, probably occurring in northern Namibia. Caught in bottom trawls, with longlines, and hook-and-line.

Habitat and biology: On the continental shelf, to a depth of 100 m. Apparently specialized in feeding on cephalopods.

**HEMIGALEIDAE*****Carcharhinus brachyurus* (Günther, 1870)**

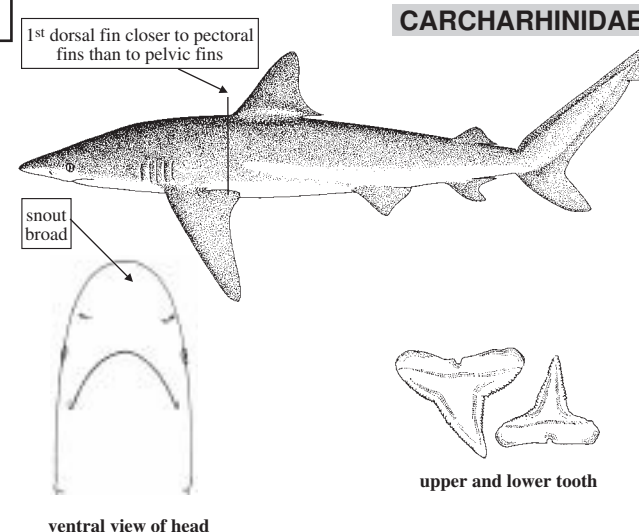
FAO names: **En** - Copper shark; **Fr** - Requin cuivre; **Sp** - Tiburón cobrizo.

Local names: Koperhaai (Ak), Kupferhai (Gr).

Size: To about 3 m.

Fisheries: Taken in bottom trawls and by line gear. Also commonly taken by shore anglers and occasionally by purse seiners.

Habitat and biology: Inhabits the continental shelf from the surfline to a depth of at least 100 m. Feeds on a variety of bony fishes, as well as on other elasmobranchs and invertebrates. Sexual maturity is reached at the age of 5 years and a length of approximately 2.3 m. Although potentially dangerous to people, no attacks have been recorded in Namibia.

**CARCHARHINIDAE**

***Carcharhinus signatus* (Poey, 1868)**

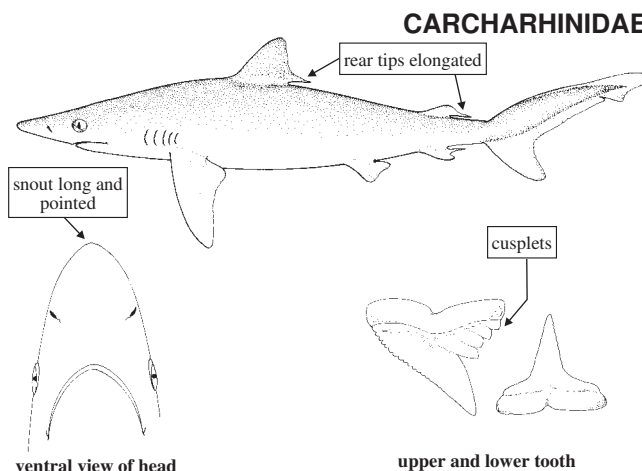
FAO names: **En** - Night shark; **Fr** - Requin de nuit; **Sp** - Tiburón nocturno.

Local names:

Size: To about 2.8 m.

Fisheries: Caught with longlines and occasionally in pelagic trawls.

Habitat and biology: Coastal to semioceanic, prefers warm waters and therefore mostly occurs in northern Namibia near the shelf edge, and occurs from the surface to a depth of 600 m. Feeds on bony fishes such as mackerels, flying fishes, butterfishes, and seabasses.

***Prionace glauca* (Linnaeus, 1758)****(plate II, 14)****CARCHARHINIDAE**

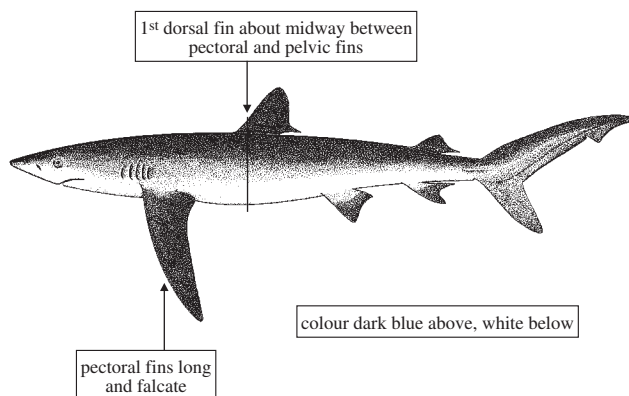
FAO names: **En** - Blue shark; **Fr** - Peau bleue; **Sp** - Tiburón azul.

Local names: Blouhaai (Ak); Blauhαι, Großer Blauhαι (Gr).

Size: To at least 4 m.

Fisheries: A common oceanic shark, caught mainly with pelagic longlines but also on hook-and-line, pelagic trawls, and bottom trawls. A frequent bycatch of the swordfish fishery. Occasionally caught by purse seiners.

Habitat and biology: A wide ranging, circumglobal oceanic shark, also occurring near the coast, from the surface to a depth of about 150 m. Feeds on smaller bony fishes, cephalopods, small sharks, cetacean carrion, garbage, and seabirds.

***Centrophorus granulosus* (Bloch and Schneider, 1801)****(plate II, 15)****SQUALIDAE**

FAO names: **En** - Gulper shark; **Fr** - Squalechagrin commun; **Sp** - Quelvacho.

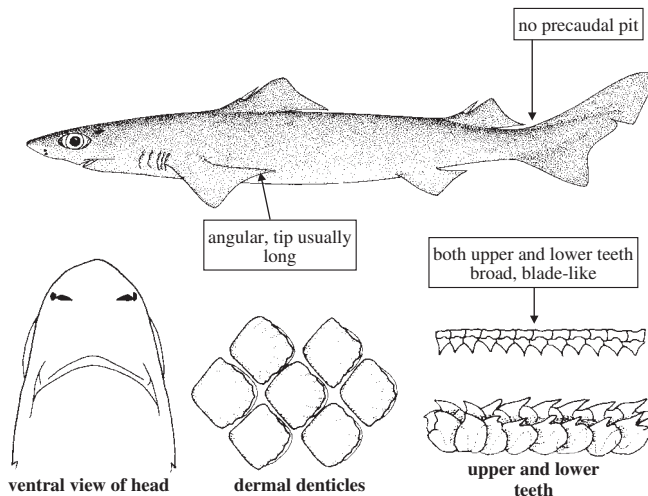
Local names: Rauher Dornhai (Gr).

Size: To about 1.5 m.

Fisheries: Commonly caught with bottom trawls.

Habitat and biology: A large, fairly common deep-water shark of the outer continental shelf and upper slope, usually near the bottom, between depths of 100 and 1 200 m. Feeds on hake, epigonids, and lantern fishes.

Remarks: Reports of *Centrophorus uyato* in Namibia are attributable to this species. May be placed in a separate family, the Centrophoridae.



***Centrophorus squamosus* (Bonnaterre, 1788)**

(plate II, 16)

SQUALIDAE

FAO names: **En** - Leafscale gulper shark;
Fr - Squale-chagrin de l'Atlantique;
Sp - Quelvacho negro.

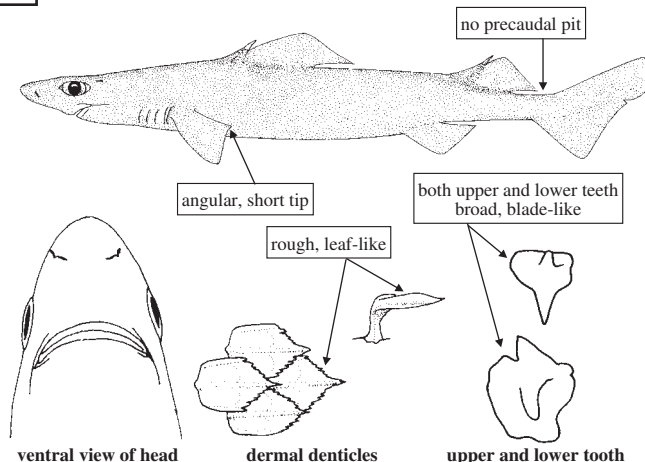
Local names: Düstere Dornhai (Gr).

Size: To about 1.6 m.

Fisheries: Caught with line gear and common in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: Found both pelagic and near the bottom on the continental slope from depths of about 200 to over 2 000 m.

Remarks: May be placed in the Centrophoridae

***Centroscyllium fabricii* (Reinhardt, 1825)****SQUALIDAE**

FAO names: **En** - Black dogfish; **Fr** - Aiguillat noir; **Sp** - Tollo negro merga.

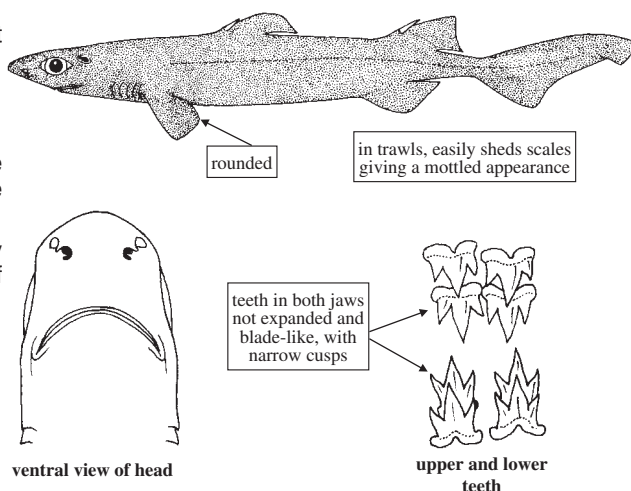
Local names:

Size: Probably to 1 m.

Fisheries: Taken in bottom trawls and with line gear. A bycatch of the deep-water orange roughy fishery.

Habitat and biology: A schooling shark, fairly abundant from the edge of the continental shelf to depths of 1 600 m.

Remarks: May be placed in the Etmopteridae.

***Centroscymnus coelolepis* Bocage and Capello, 1864****SQUALIDAE**

FAO names: **En** - Portuguese dogfish;
Fr - Pailona commun; **Sp** - Pailona.

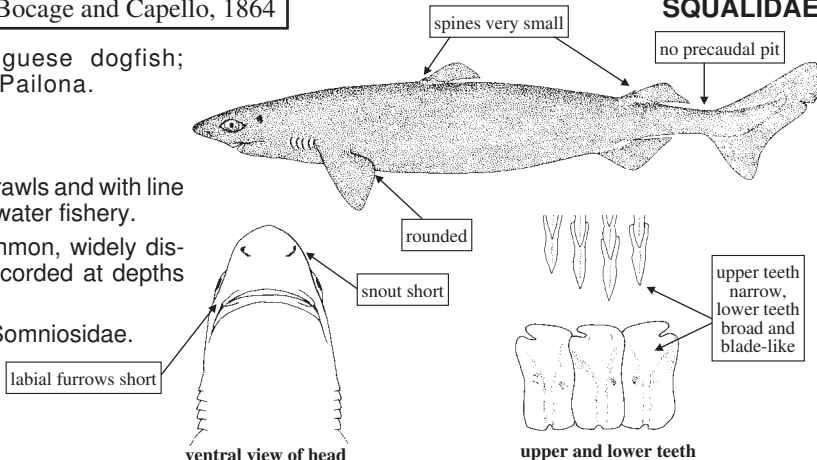
Local names:

Size: To about 1.2 m.

Fisheries: Caught in bottom trawls and with line gear. A bycatch of the deep-water fishery.

Habitat and biology: A common, widely distributed deep-water shark, recorded at depths from 270 to over 3 000 m.

Remarks: May be placed in Somniosidae.



***Centroscyrnus crepidater* (Bocage and Capello, 1864)**

FAO names: **En** - Longnose velvet dogfish;
Fr - Pailona à long nez; **Sp** - Sapata negra.

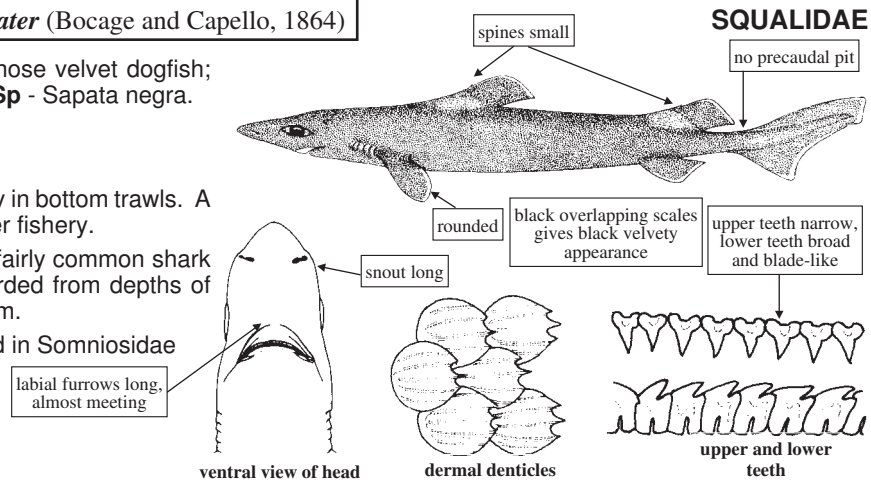
Local names:

Size: To 90 cm.

Fisheries: Caught mainly in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: A fairly common shark of the upper slope, recorded from depths of about 250 to over 1 000 m.

Remarks: May be placed in Somniosidae

***Deania calcea* (Lowe, 1839)**

(plate III, 17)

FAO names: **En** - Birdbeak dogfish; **Fr** - Squal savate; **Sp** - Tollo pajarito.

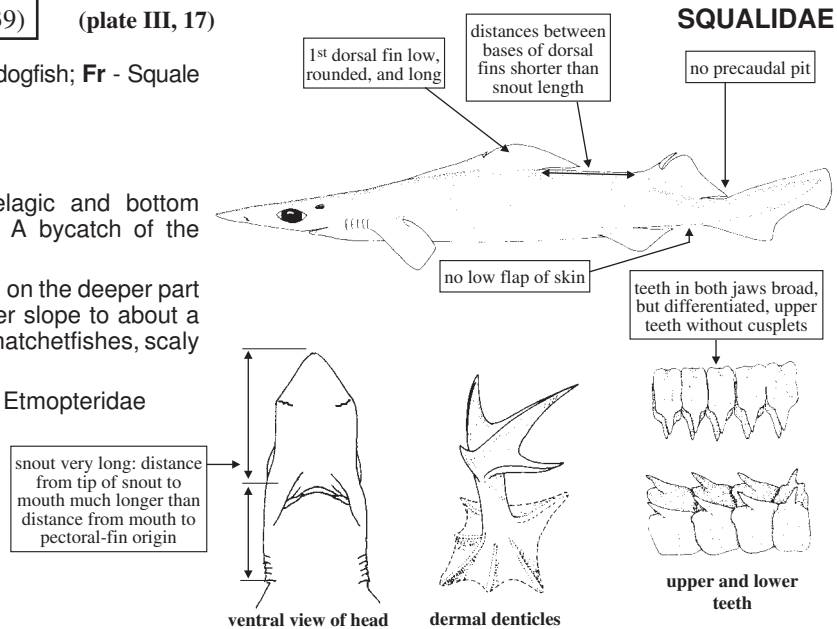
Local names:

Size: To 1.1 m.

Fisheries: Caught with pelagic and bottom trawls and with line gear. A bycatch of the deep-water fishery

Habitat and biology: Found on the deeper part of the shelf and on the upper slope to about a depth of 1 500 m. Feeds on hatchetfishes, scaly dragonfishes, and shrimps.

Remarks: May be placed in Etmopteridae

***Deania profundorum* (Smith and Radcliffe, 1912)**

FAO names: **En** - Arrowhead dogfish;
Fr - Squal savate lutin; **Sp** - Tollo flecha.

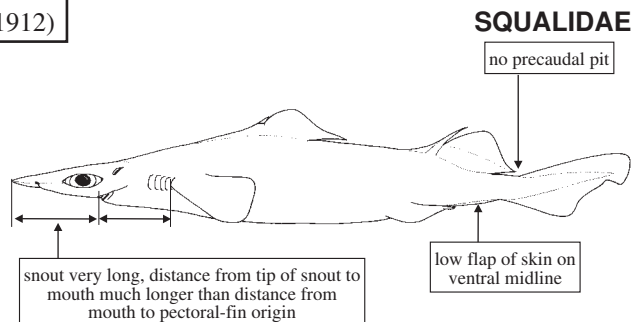
Local names:

Size: To about 70 cm.

Fisheries: Commonly caught in bottom trawls. A bycatch of the deep-water fishery

Habitat and biology: Inhabiting the upper continental slope, from depths of about 250 to 1800 m. Feeds on midwater fishes (myctophids), cephalopods, and crustaceans.

Remarks: May be placed in Centrophoridae.



***Deania quadrispinosum* (McCulloch, 1915)**

FAO names: **En** - Longsnout dogfish; **Fr** - Squalé-savate à long nez; **Sp** - Tollo trompalarga.

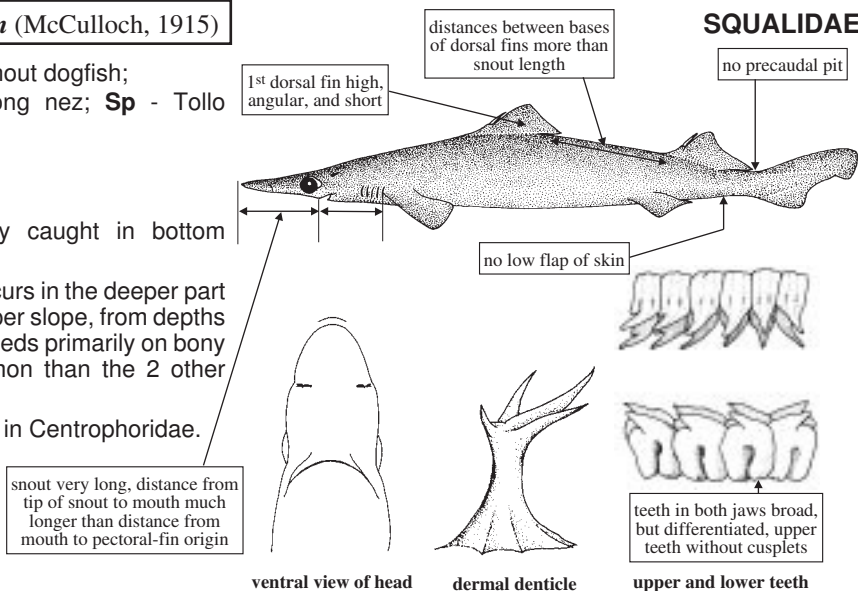
Local names:

Size: To about 1.15 m.

Fisheries: Occasionally caught in bottom trawls.

Habitat and biology: Occurs in the deeper part of the shelf and on the upper slope, from depths of about 150 to 750 m. Feeds primarily on bony fishes. Much less common than the 2 other species of *Deania*.

Remarks: May be placed in Centrophoridae.

***Etmopterus cf. brachyurus* Smith and Radcliffe, 1912**

(plate IX, 71)

SQUALIDAE

FAO names: **En** - Shorttail lanternshark; **Fr** - Sagre porte-feu à queue courte; **Sp** - Tollo lucero mocho.

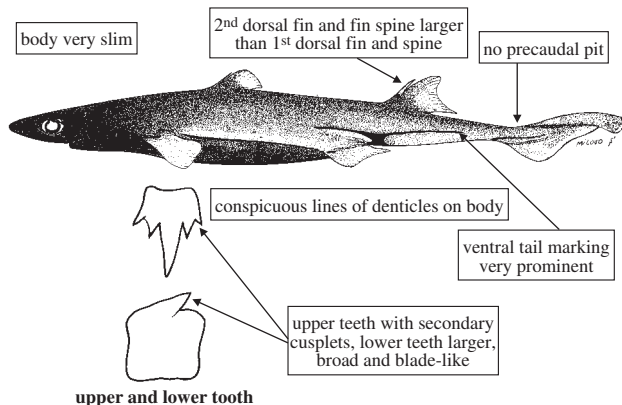
Local names:

Size: To about 42 cm.

Fisheries: Caught occasionally in bottom trawls.

Habitat and biology: Found near the bottom in depths between 400 and 900 m.

Remarks: Reports of *E. lucifer* are attributable to this species since *E. lucifer* probably does not occur in Southern Africa. May be placed in Etmopteridae.

***Etmopterus "gracilispinis"* Krefft, 1968****SQUALIDAE**

FAO names: **En** - Broadbanded lanternshark; **Fr** - Sagre rubane; **Sp** - Tollo lucero bandoneado.

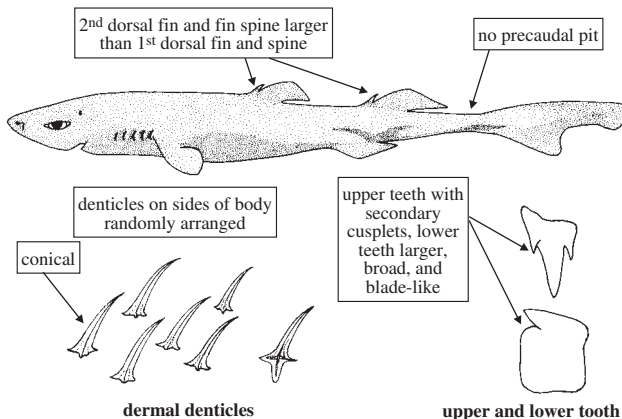
Local names:

Size: To about 35 cm.

Fisheries: Caught incidentally in bottom trawls.

Habitat and biology: Bottom living, at depths generally exceeding 600 m.

Remarks: Reports of this species off South Africa are most likely attributable to the recently described *E. compagnoi* Fricke and Koch, 1990. So far this species has been recorded from just south of Namibia, but its occurrence in Namibia is probable. May be placed in Etmopteridae.



***Etmopterus pusillus* (Lowe, 1839)**

FAO names: **En** - Smooth lanternshark;
Fr - Sagre nain; **Sp** - Tollo lucero liso.

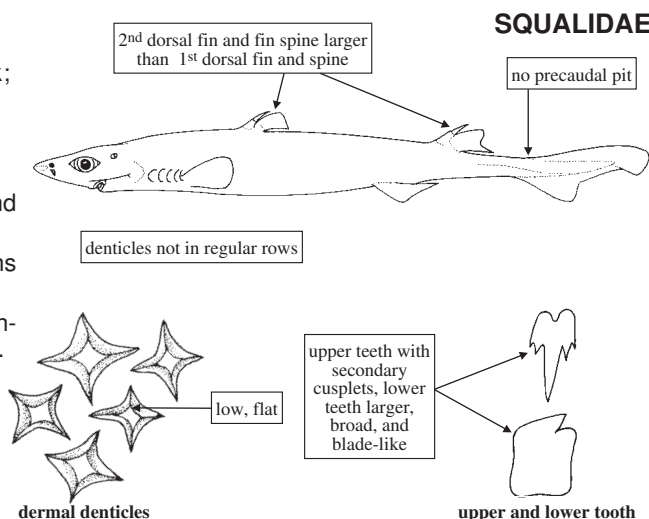
Local names:

Size: To about 50 cm.

Fisheries: Caught occasionally in bottom and midwater trawls.

Habitat and biology: Benthopelagic at depths between around 400 and 700 m.

Remarks: Probably 2 species are lumped under this name. May be placed in Etmopteridae.

***Scymnodon squamulosus* (Günther, 1877)**

FAO names: **En** - Velvet dogfish;
Fr - Squale-grogneur veloute; **Sp** - Bruja terciopelo.

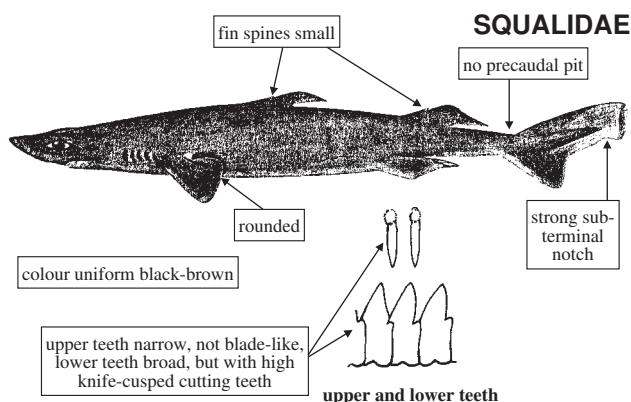
Local names:

Size: To about 70 cm.

Fisheries: Occasionally caught in deep-water bottom trawls.

Habitat and biology: Found on the upper continental slope from depths of 430 to 900 m. A little known shark.

Remarks: May be placed in Somniosidae.

***Squalus acanthias* Smith and Radcliffe, 1912**

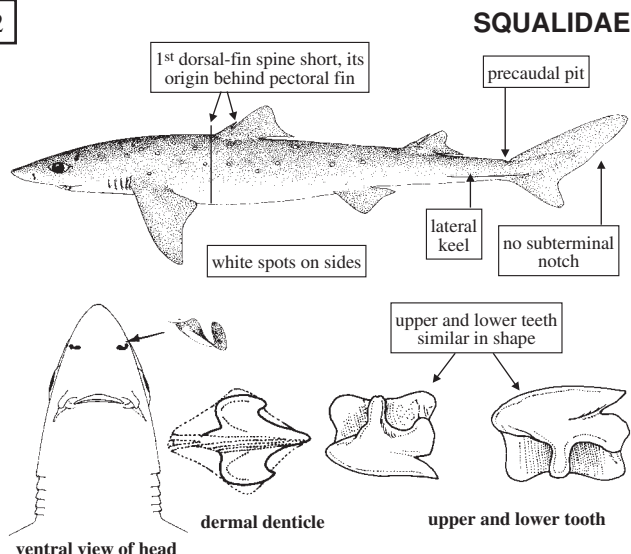
FAO names: **En** - Spotted spiny dogfish;
Fr - Aiguillat commun; **Sp** - Mielga.

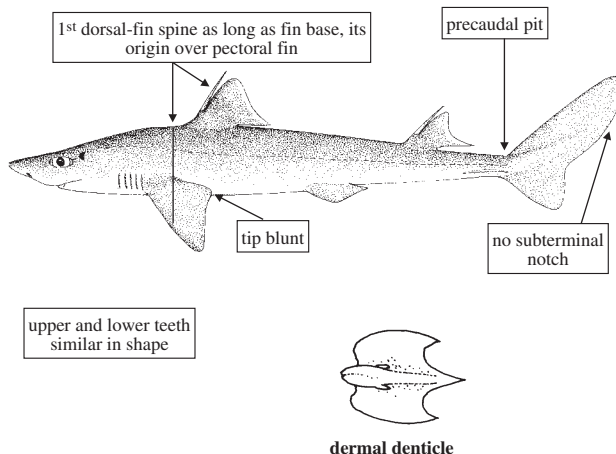
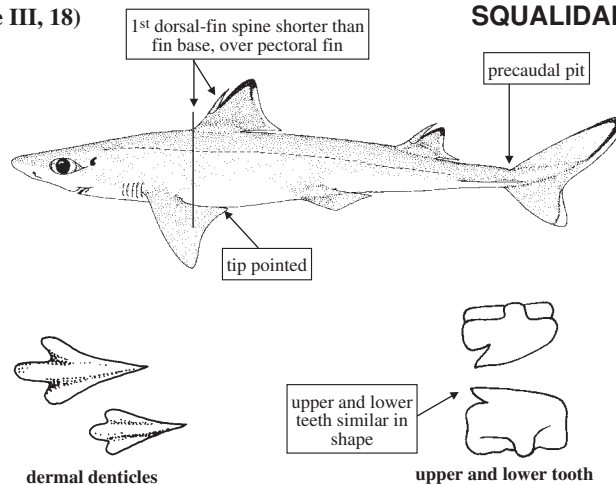
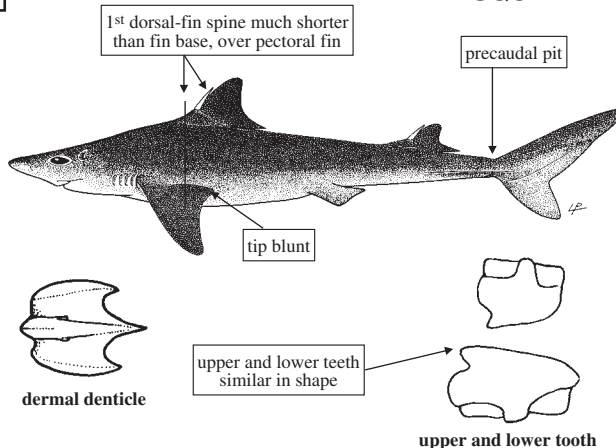
Local names: Spikkel-penhaai (Ak); Grundhai (Gr).

Size: To about 1 m.

Fisheries: Incidentally caught in bottom trawls and longlines. This species is heavily fished in the eastern North Atlantic.

Habitat and biology: Found from near the shore to at least a depth of 900 m, able to tolerate brackish water, usually near the bottom but often also appearing at the surface. Feeds on all bony fishes smaller than itself and a wide variety of invertebrates. Males attain sexual maturity at 50 cm, females at 60 cm. Gestation period is 2 years. Probably one of the most abundant living sharks.



Squalus blainvillei* (Risso, 1826)*SQUALIDAE****FAO names:** **En** - Longnose spurdog;**Fr** - Aiguillat coq; **Sp** - Galludo.**Local names:** Blainvilles Dornhai (Gr).**Size:** To about 1 m.**Fisheries:** Caught incidentally in bottom trawls and on line gear.**Habitat and biology:** Prefers muddy bottoms, from shallow inshore waters to at least a depth of 450 m. Feeds on bony fishes such as seabreams, mackerel, and percichthyids, and invertebrates such as crabs, lobsters, and cephalopods.**Remarks:** There is some question concerning the validity of the name *blainvillei* for this species (Muñoz-Chapuli and Ramos, 1989), and reports of this species may be attributable to *S. mitsukurii*.***Squalus megalops* (Macleay, 1881)****(plate III, 18)****SQUALIDAE****FAO names:** **En** - Shortnose spurdog; **Fr** - Aiguillat nez court; **Sp** - Galludo ñato.**Local names:** Bluntnose spiny dogfish; Stompneus-penhaai (Ak).**Size:** To 70 cm.**Fisheries:** Commonly caught with bottom trawls.**Habitat and biology:** A common and abundant dogfish forming dense and large schools, found on the outer continental shelf and upper slope at depths between 50 and 750 m. Feeds on bony fishes, cephalopods, crustaceans, and other elasmobranchs. Sexual maturity is attained at 42 cm in males and 55 cm in females; gestation period is 2 years.***Squalus mitsukurii* Jordan and Snyder, 1903****SQUALIDAE****FAO names:** **En** - Shortspine spurdog;**Fr** - Aiguillat épinette; **Sp** - Galludo espinilla.**Local names:** Longnose spiny dogfish; Langneus-penhaai (Ak);**Size:** To 1.1 m.**Fisheries:** Caught in large numbers by trawlers and by kingclip longliners.**Habitat and biology:** Moderately common offshore. Feeds on bony fishes, including hake, snoek, conger eels, and lantern fishes, and invertebrates such as squid, octopus, and crustaceans.

Oxynotus centrina* (Linnaeus, 1758)*OXYNOTIDAE**

FAO names: **En** - Flatiron shark; **Fr** - Centrine du Cap; **Sp** - Cerdo marino del Cabo.

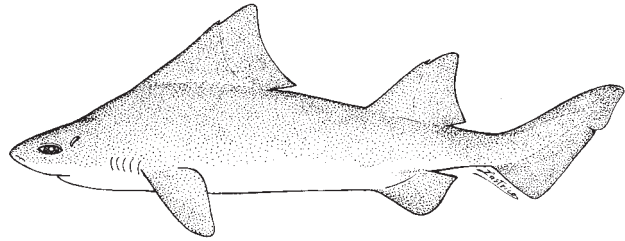
Local names: Strykysterhaai (Ak); Meersau, Schweinhai (Gr).

Size: To 1.5 m.

Fishing gear: Rarely caught by large offshore-trawling fleets.

Habitat and biology: Found from depths of 60 to 660 m. Feeds on polychaetes.

Remarks: Formerly *O. shubnikovi* which was thought to be distinct from this species, also occurring in the eastern North Atlantic and Mediterranean.



trunk triangular in cross-section

***Echinorhinus brucus* Garman, 1884**

(plate III, 19)

ECHINORHINIDAE

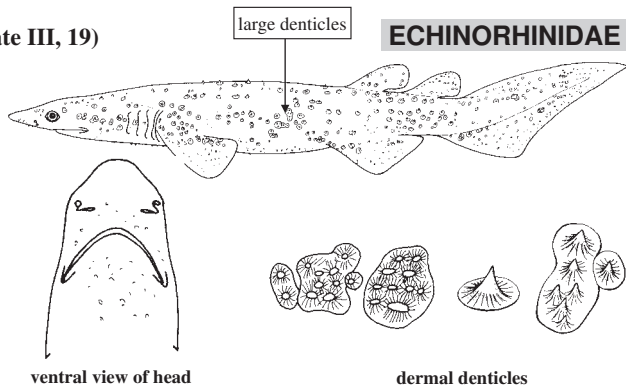
FAO names: **En** - Bramble shark; **Fr** - Squalé bouclé; **Sp** - Tiburón de clavos.

Local names: Braamhaai (Ak); Alligatorhai, Nagelhai, Stachelhai (Gr).

Size: To about 3.1 m.

Fisheries: Occasionally caught in bottom trawls and line gear, rarely by shore anglers.

Habitat and biology: A bottom-living species, found from shallow waters to a depth of about 900 m. Feeds on smaller sharks (spiny dogfish), bony fishes, and crabs.



ventral view of head

dermal denticles

Squatina aculeata* Dumeril, 1829*SQUATINIDAE**

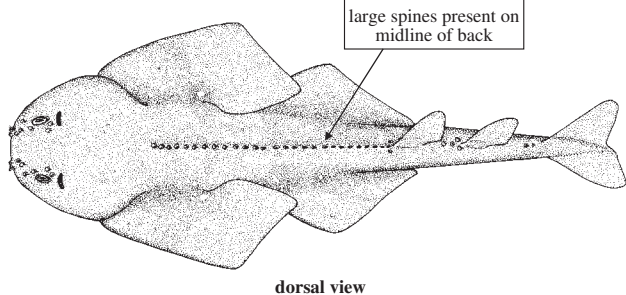
FAO names: **En** - Sawback angelshark; **Fr** - Ange de mer épineux; **Sp** - Angelote espinudo.

Local names: Engelhaai (Ak).

Size: To 1.9 m.

Fisheries: Taken in bottom trawls and on line gear.

Habitat and biology: On the continental shelf and upper slope, between depths of 30 and 500 m, usually near the bottom. Feeds on small sharks and carangids.



dorsal view

Squatina oculata* Bonaparte, 1840*SQUATINIDAE**

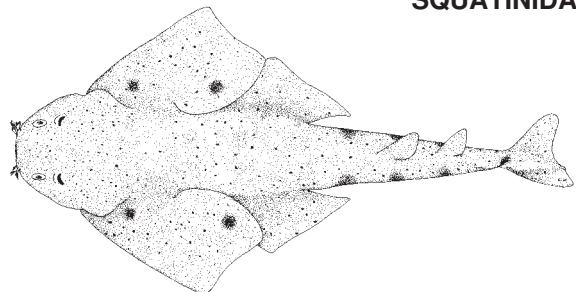
FAO names: **En** - Smoothback angelshark; **Fr** - Ange de mer ocellé; **Sp** - Pez ángel.

Local names: Engelhaai (Ak).

Size: To 1.6 m.

Fisheries: Occasionally caught in bottom trawls.

Habitat and biology: Found on the continental shelf and upper slope, but mainly between 50 and 100 m. Feeds on small fishes.

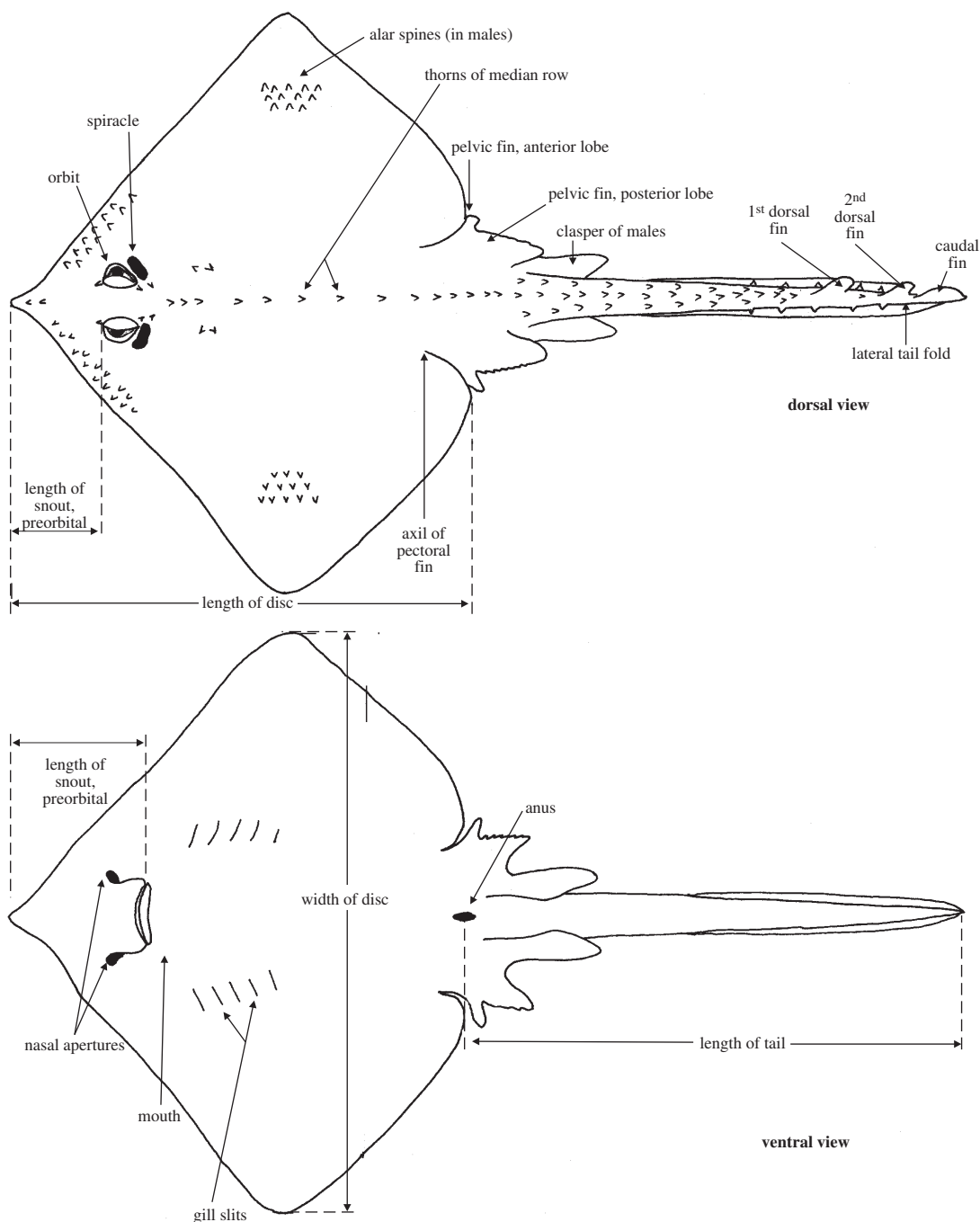


dorsal view

BATOID FISHES - SKATES, RAYS, AND GUITARFISHES

Mostly from the work of Compagno and collaborators (1989 and 1991) and our collections, we count 28 species in 7 families and 3 orders of batoid fishes from Namibia. A checklist of batoid fishes is included in the Appendix in order to serve as an aid to a more accurate assessment of the batoid resources of Namibia. Although not actively fished, they are consistently caught in the bottom trawls of the hake fishery and constitute a substantial biomass in the demersal community.

TECHNICAL TERMS AND MEASUREMENTS



Order **TORPEDINIFORMES - Electric Rays**

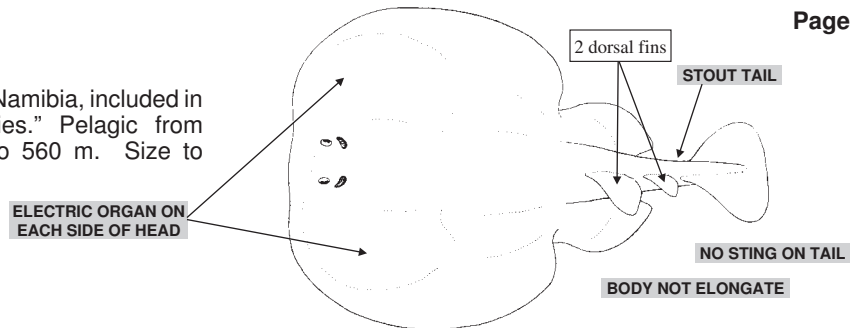
A large electric organ on each side of head but no sting on tail; body not elongate and shark-like but tail is stout and caudal fin large. Two families found in Namibia.

TORPEDINIDAE

Page 92

Electric rays

One species found in Namibia, included in the "Guide to Species." Pelagic from depths between 10 to 560 m. Size to 1.8 m total length.

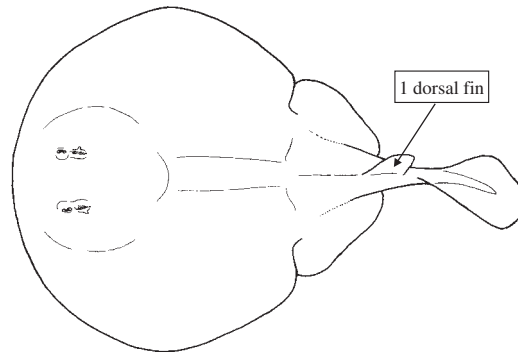


NARKIDAE

Page 92

Numbfish

A single species found in Namibia, included in the "Guide to Species." Demersal in shallow depths to 183 m. Size to 38 cm total length.



Order **RAJIFORMES - Guitarfishes and Skates**

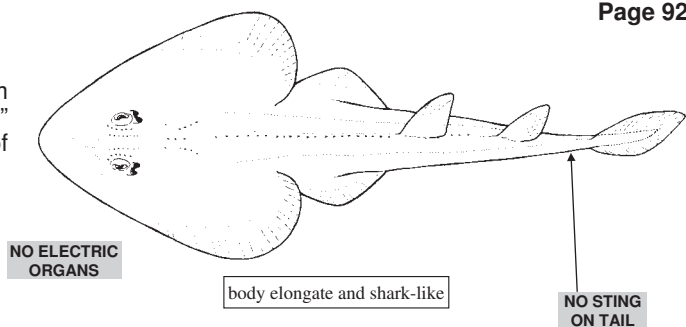
No electric organs on head or sting on tail; body elongate and shark-like (guitarfish family) or, with enlarged pectoral fins forming a disc and the rear margin of the pelvic fin deeply notched forming 2 distinct lobes and with a slender tail (skate family). Two families found in Namibia.

RHINOBATIDAE

Page 92

Guitarfishes

Two species in 1 genus reported from Namibia, both in the "Guide to Species." Coastal in shallow water to depths of around 70 m. Size to 1.4 m total length.

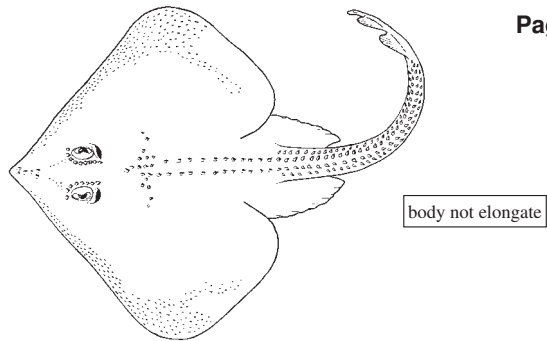


RAJIDAE

Page 93

Skates

Perhaps 17 species in 3 genera from Namibia, all in the "Guide to Species" except 2 whose presence in Namibia is doubtful. Demersal from shallow depths to nearly 2 000 m. Size to 1.3 m disc width.

**Order MYLIOBATIFORMES - Stingrays**

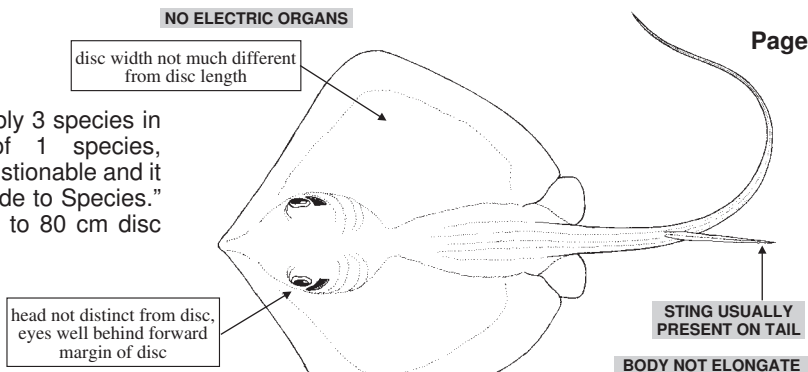
No electric organs on head but sting on tail usually present; pectoral fins enlarged to form a disc; tail slender or whip-like; pelvic fins not deeply indented, each with only a single lobe. Three families reported from Namibia.

DASYATIDAE

Page 98

Stingrays

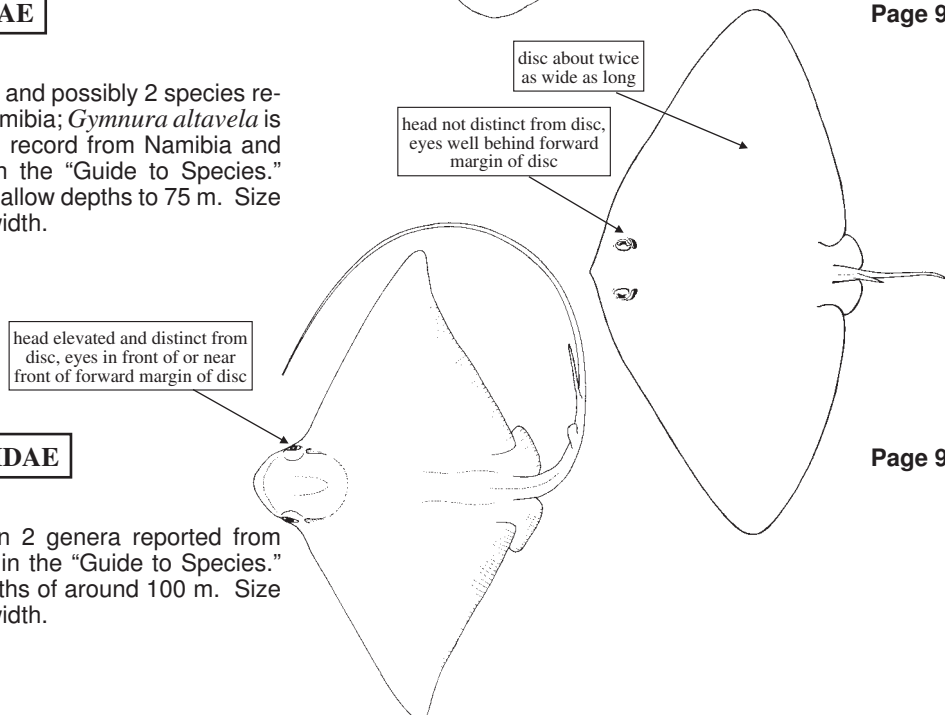
A single genus and possibly 3 species in Namibia; the record of 1 species, *Dasyatis pastinaca*, is questionable and it is not included in the "Guide to Species." Neritic and pelagic. Size to 80 cm disc width.

**GYMNURIDAE**

Page 99

Butterflyrays

A single genus and possibly 2 species reported from Namibia; *Gymnura altavela* is a questionable record from Namibia and not included in the "Guide to Species." Demersal in shallow depths to 75 m. Size to 2.5 m disc width.

**MYLIOBATIDAE**

Page 99

Eagle rays

Two species in 2 genera reported from Namibia, both in the "Guide to Species." Coastal to depths of around 100 m. Size to 1.8 m disc width.

***Torpedo nobiliana* Bonaparte, 1835**

(plate III, 20)

TORPEDINIDAE

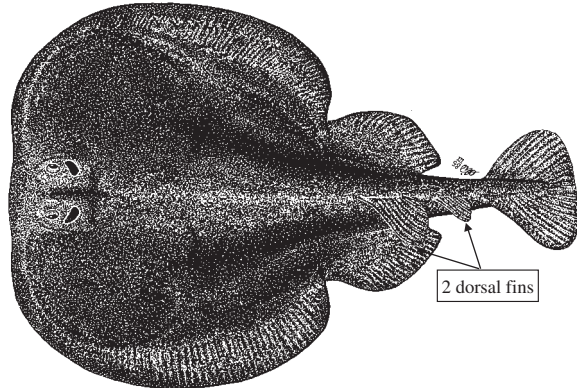
FAO names: **En** - Electric ray; **Fr** - Torpille noire; **Sp** - Tremolina negra.

Local names: Atlantic electric ray; Atlantiese drilvis (Ak); Schwarzer Zitterrochen (Gr).

Size: Maximum recorded, 1.8 m total length.

Fisheries: Caught occasionally with bottom trawls and line gear.

Habitat and biology: Young are known to be demersal on soft bottoms, from 10 to 150 m, sometimes as deep as 560 m. Adults are pelagic or semi-pelagic, migrating long distances. Feeds mainly on bony fishes.

***Narke capensis* (Gmelin, 1789)****NARKIDAE**

FAO names: **En** - Cape numbfish; **Fr** - Poisson engourdeur du Cap; **Sp** - Pez temblador del Cabo.

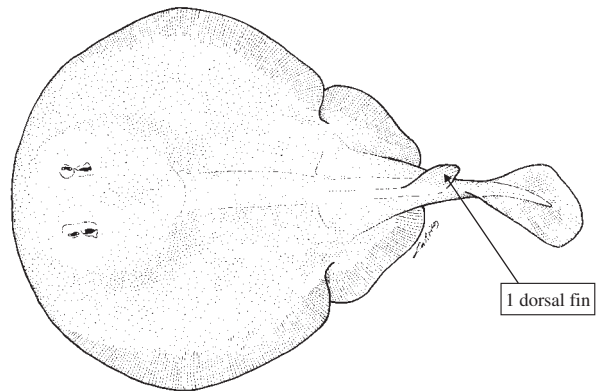
Local names: Onefin electric ray; Eenvin-drilvis (Ak).

Size: To about 38 cm total length.

Fisheries: None at present.

Habitat and biology: Found in shallow waters down to a depth of 180 m. A small ray that can deliver a very powerful shock.

Remarks: Only a single recorded specimen collected in Namibia thus far, 1 caught by a shore angler in Meob Bay. Unofficial report of this species from Walvis Bay.

***Rhinobatos annulatus* Smith, 1841****RHINOBATIDAE**

FAO names: **En** - Lesser guitarfish; **Fr** - Poisson-guitare du Cap; **Sp** - Guitarra del Cabo.

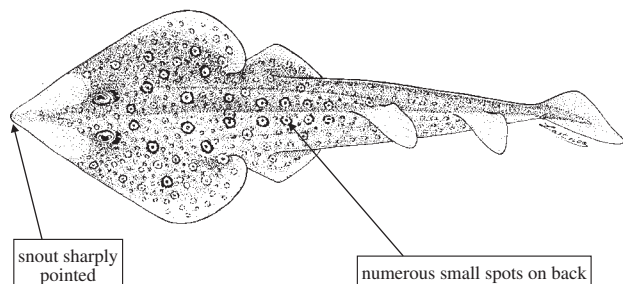
Local names: Kleiner sandkruiper (Ak).

Size: To about 1.4 m total length.

Fisheries: Occasionally caught in bottom trawls and by hook-and-line from the beach.

Habitat and biology: Mainly in inshore waters and down to a depth of 70 m; also entering estuaries. Feeds mainly on small invertebrates including crustaceans, bivalves, and polychaete worms, and small bony fishes.

Remarks: Confirmed reports for localities in Namibia are needed.



Rhinobatos blochii* Müller and Henle, 1841*RHINOBATIDAE**

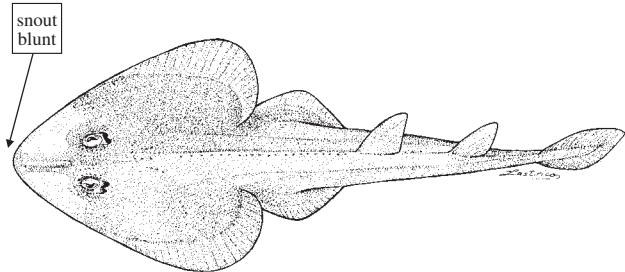
FAO names: **En** - Bluntnose guitarfish; **Fr** - Poisson guitare épointé; **Sp** - Guitarra embotada.

Local names: Stompneus-sandkruiper (Ak).

Size: To about 95 cm.

Fisheries: Occasionally caught in bottom trawls.

Habitat and biology: Demersal, near shore in shallow sandy areas. Rare. In Namibia, south of Walvis Bay.

***Bathyraja smithii* (Müller and Henle, 1841)**

(plate IX, 72)

RAJIDAE

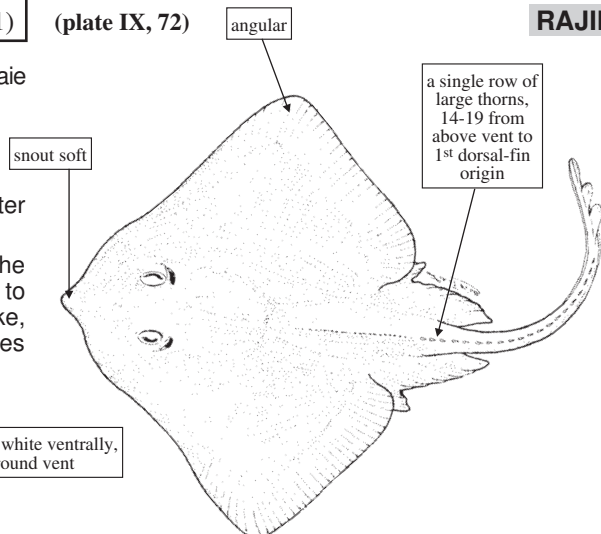
FAO names: **En** - African softnose skate; **Fr** - Raie de Smith; **Sp** - Raya de Smith.

Local names:

Size: Up to 85 cm disc width.

Fisheries: Occasionally caught in deep-water bottom trawls.

Habitat and biology: A demersal species of the upper continental slope, from depths of 440 to 1 020 m. Feeds on bony fishes such as hake, barracudinas, and dragonets, and invertebrates such as squid, octopus, crabs, and shrimps.



colour whitish grey, sometimes with white spots; white ventrally, with black blotches between gill slits and around vent

***Cruriraja parcomaculata* Von Bonde and Swart, 1923****RAJIDAE**

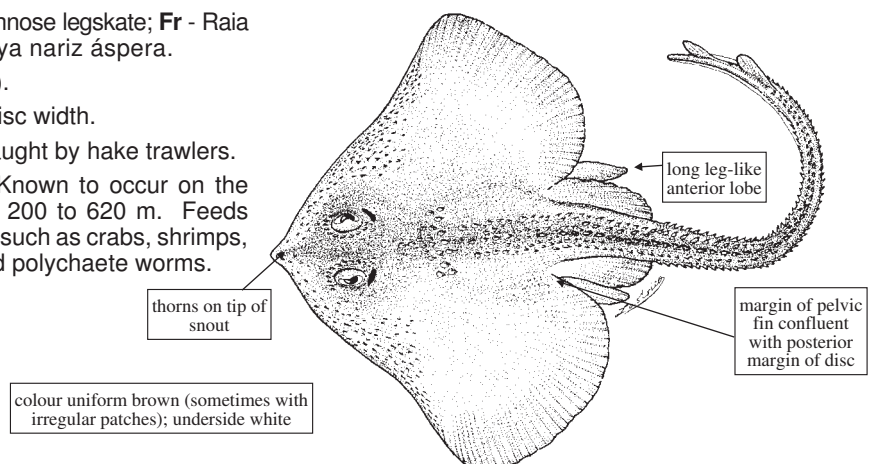
FAO names: **En** - Roughnose legskate; **Fr** - Raia à nez hérissé; **Sp** - Raya nariz áspera.

Local names: Rog (Ak).

Size: To about 35 cm disc width.

Fisheries: Regularly caught by hake trawlers.

Habitat and biology: Known to occur on the bottom, at depths from 200 to 620 m. Feeds mainly on invertebrates such as crabs, shrimps, hermit crabs, squid, and polychaete worms.



***Raja alba* Lacepède, 1803**

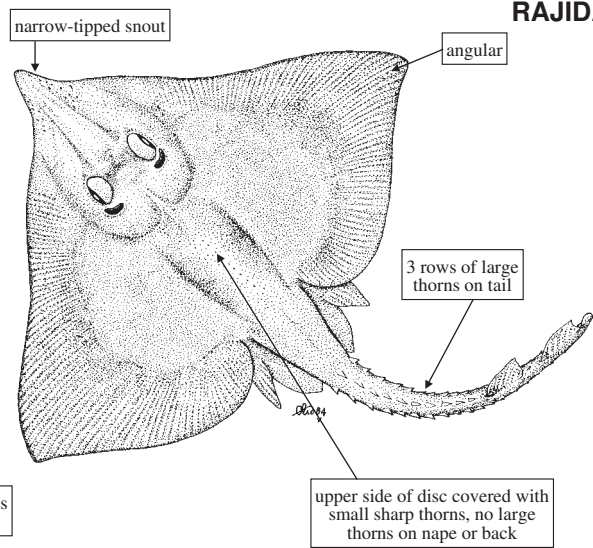
FAO names: **En** - White skate; **Fr** - Raie blanche; **Sp** - Raya bramante.

Local names: Spearnose skate; Spiesneus (Ak); Bandrochen, Spitzrochen (Gr).

Size: To at least 180 cm disc width.

Fisheries: Caught in bottom trawls, pelagic trawls, and by shore anglers.

Habitat and biology: A demersal species, from intertidal coastal waters to the upper continental slope, from shallow depths to about 500 m. A bottom predator, feeding on a wide range of species, including bony fishes such as hake, kingklip, anchovy, gobies, sardines, and horse mackerel, and other sharks, rays, and various cephalopods and crustaceans.

**RAJIDAE*****Raja caudaspinosa* von Bonde and Swart, 1923**

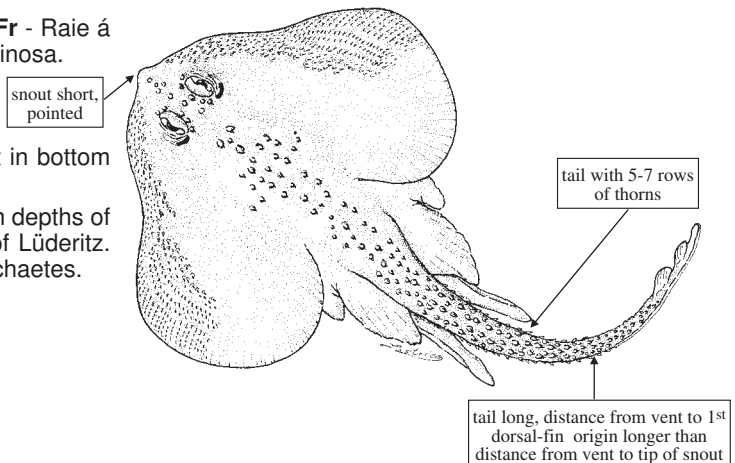
FAO names: **En** - Munchkin skate; **Fr** - Raie à queue épineuse; **Sp** - Raya cola espinosa.

Local names: Rog (Ak).

Size: To at least 32 cm disc width.

Fisheries: Only occasionally caught in bottom trawls.

Habitat and biology: Recorded from depths of 310 to about 700 m, mostly south of Lüderitz. Feeds on mysids, lightfish, and polychaetes.

**RAJIDAE*****Raja clavata* Linnaeus, 1758 (plate III, 21)**

FAO names: **En** - Thornback ray; **Fr** - Raie bouclée; **Sp** - Raya de clavos.

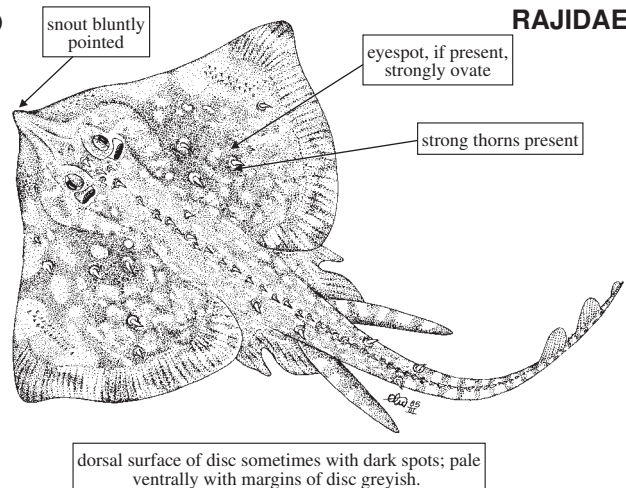
Local names: Thornback skate; Doringrug-rog (Ak); Keulenrochen, Nagelrochen, Steinrochen (Gr).

Size: To 60 cm disc width.

Fisheries: Occasionally caught in bottom trawls.

Habitat and biology: A demersal species found from shallow inshore waters to the upper continental slope to a depth of at least 700 m. Feeds on crustaceans, fish, and cephalopods.

Remarks: Reports of *R. clavata* and *R. straeleni* may represent a single species.

**RAJIDAE**

Raja confundens* Hulley, 1970 (plate X, 73)*RAJIDAE**

FAO names: **En** - Bigthorn skate; **Fr** - Raie grand épine; **Sp** - Raya de grande espina.

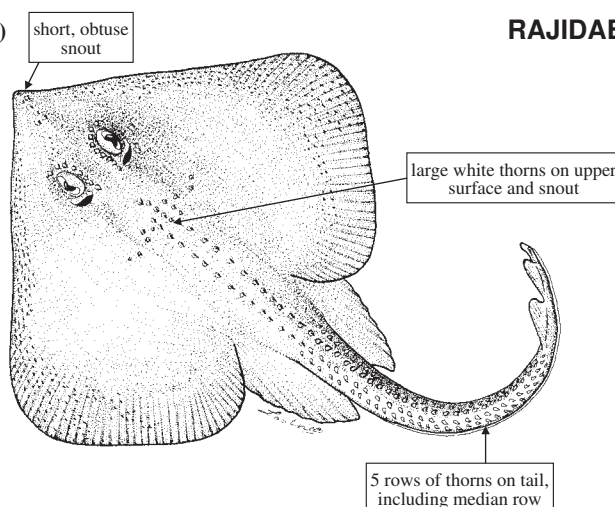
Local names:

Size: To about 45 cm disc width.

Fisheries: Commonly caught in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: Found in the deeper part of the shelf and on the upper slope, from depths of about 170 m to 900 m. Feeds mainly on invertebrates such as crustaceans, squid, and polychaete worms.

Remarks: Considered a junior synonym of *Raja barnardi* Norman, 1935 by some authors.

***Raja doutrei* Cadenat, 1960 (plate III, 22)****RAJIDAE**

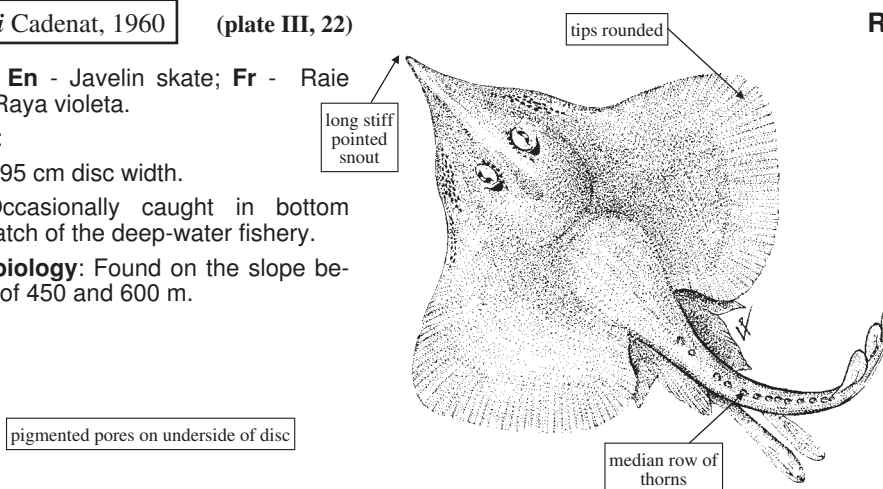
FAO names: **En** - Javelin skate; **Fr** - Raie violette; **Sp** - Raya violeta.

Local names:

Size: To over 95 cm disc width.

Fisheries: Occasionally caught in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: Found on the slope between depths of 450 and 600 m.

***Raja leopardus* von Bonde and Swart, 1923****RAJIDAE**

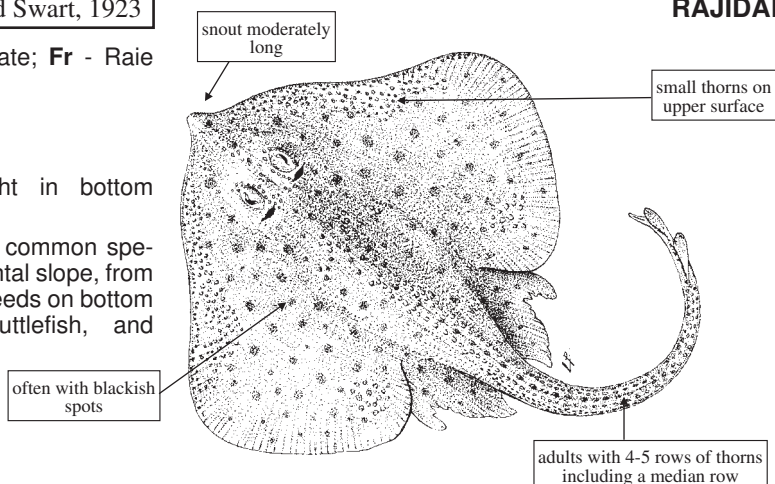
FAO names: **En** - Leopard skate; **Fr** - Raie léopard; **Sp** - Raya leopardo.

Local names:

Size: To 65 cm disc width.

Fisheries: Occasionally caught in bottom trawls.

Habitat and biology: A rather common species, found on the upper continental slope, from depths of about 300 to 900 m. Feeds on bottom crustaceans, bony fishes, cuttlefish, and polychaete worms.



***Raja miraletus* Linnaeus, 1758**

FAO names: En - Brown ray; Fr - Raie miroir; Sp - Raya de espejos.

Local names: Twineye skate; Tweeooog-rog (Ak); Vieräugiger Spiegelrochen (Gr).

Size: To 35 cm disc width.

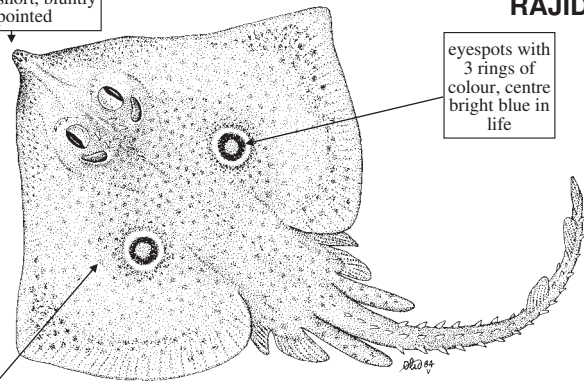
Fisheries: Occasionally caught in bottom trawls and by anglers.

Habitat and biology: Found from shallow in-shore waters to a depth of 500 m, most common between 50 and 150 m. Feeds on crustaceans, bony fishes, and cephalopods.

snout short, bluntly pointed

eyespot with 3 rings of colour, centre bright blue in life

often with small dark spots

**RAJIDAE*****Raja pullopunctata* Smith, 1964**

FAO names: En - Slime skate; Fr - Raie baveuse; Sp - Raya limosa.

Local names: Rog (Ak).

Size: To 70 cm disc width.

Fisheries: Caught in bottom trawls. Common bycatch in hake fisheries.

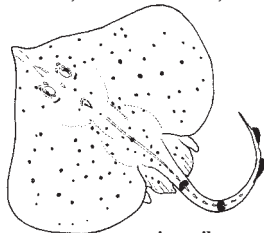
Habitat and biology: Found on soft substrate of the outer shelf and upper slope, from depths of about 50 to 450 m. A common species, feeding on various bony fishes, crustaceans, and molluscs.

long snout

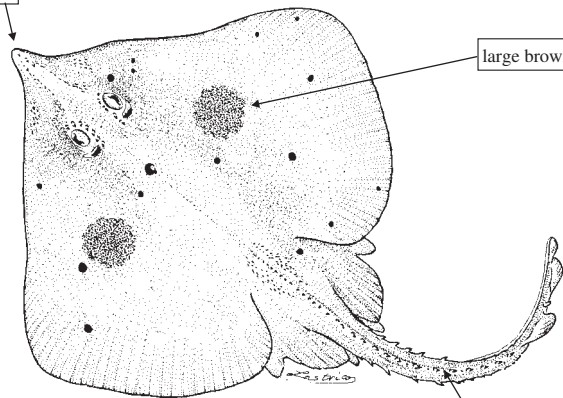
large brown blotch

no mental pores on underside of disc

median row of thorns



juvenile

**RAJIDAE*****Raja ravidula* Hulley, 1970**

FAO names: En - Smoothback skate; Fr - Raie lisse; Sp - Raya suave.

Local names: Rog (Ak).

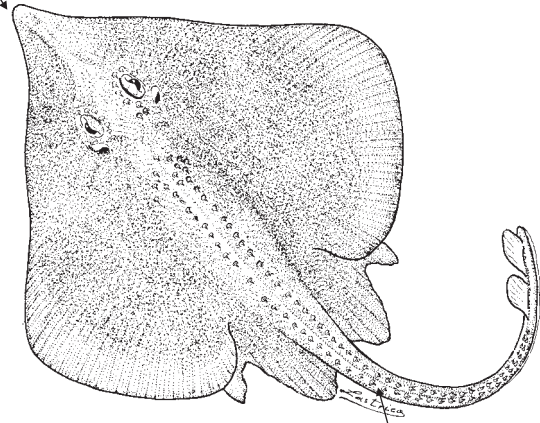
Size: To 36 cm disc width.

Fisheries: Incidentally caught in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: Upper slope from depths of about 500 to 1 000 m. Common in central Namibia.

long snout

2 prominent rows of thorns, no median row

**RAJIDAE**

***Raja spinacidermis* Barnard, 1923**

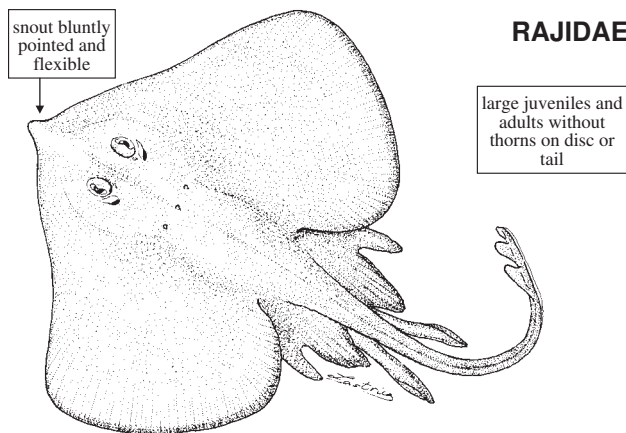
FAO names: **En** - Roughskin skate; **Fr** - Raie peau hérissée; **Sp** - Raya piel áspera.

Local names: Ruwevel-rog (Ak).

Size: To 45 cm disc width.

Fisheries: Caught occasionally in bottom trawls.

Habitat and biology: Found on the slope, from depths of about 800 to 1 400 m.

***Raja springeri* Wallace, 1967**

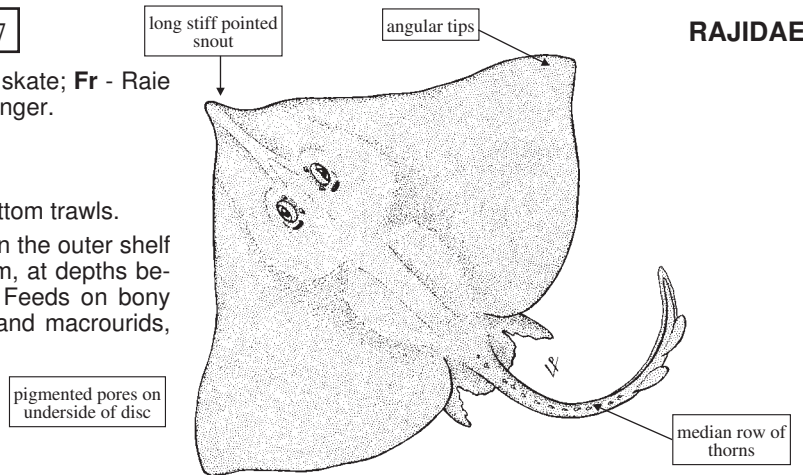
FAO names: **En** - Roughbelly skate; **Fr** - Raie de Springer; **Sp** - Raya de Springer.

Local names:

Size: To 130 cm disc width.

Fisheries: Rarely caught in bottom trawls.

Habitat and biology: Found on the outer shelf and upper slope, on the bottom, at depths between about 80 and 750 m. Feeds on bony fishes such as round herring and macrourids, and on crabs and squids.

***Raja straeleni* Poll, 1951**

FAO names: **En** - Biscuit skate; **Fr** - Raie tachetée; **Sp** - Raya manchada.

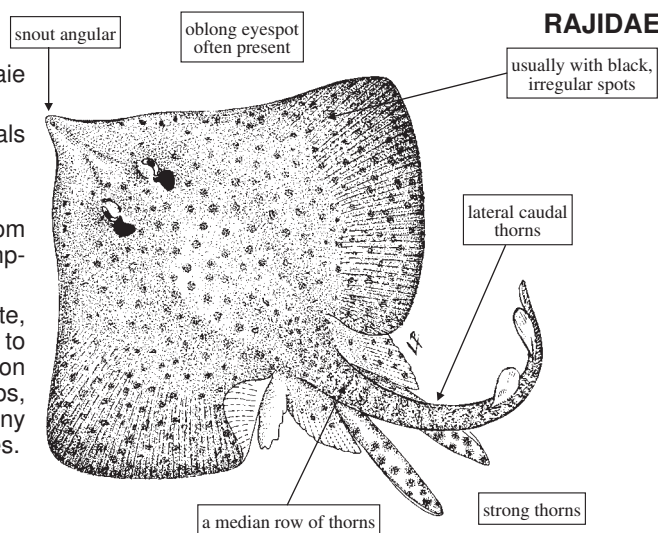
Local names: False thornback skate; Vals doringrug-rog (Ak).

Size: To 68 cm disc width.

Fisheries: Occasionally caught in bottom trawls; pectoral fins used for human consumption.

Habitat and biology: A very common skate, found from inshore waters to the upper slope to a depth of about 350 m. Feeds mainly on invertebrates such as shrimps, hermit crabs, mantis shrimp, and cephalopods, and bony fishes such as hake, sardine, and lanternfishes.

Remarks: See remarks under *R. clavata*.



***Raja wallacei* Hulley, 1970**

FAO names: **En** - Yellow spotted skate; **Fr** - Raie de Wallace; **Sp** - Raya de Wallace.

Local names: Blancmange skate; Witpoeding-rog (Ak).

Size: To 53 cm disc width.

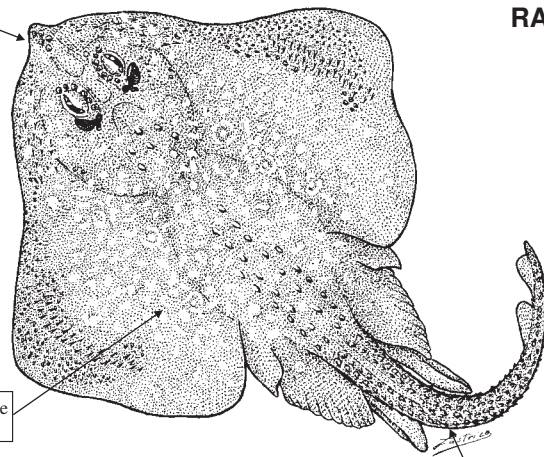
Fisheries: Rarely caught in bottom trawls.

Habitat and biology: Found at depths of 90 to 440 m. Preys on crustaceans and small fish, and is also scavenger.

short broad blunt snout

bright yellow or white irregular spots

2-4 rows of thorns

**RAJIDAE*****Dasyatis chrysonota* (Smith, 1828)**

FAO names: **En** - South African blue stingray;

Local names: Blue stingray; Blou pylstert (Ak).

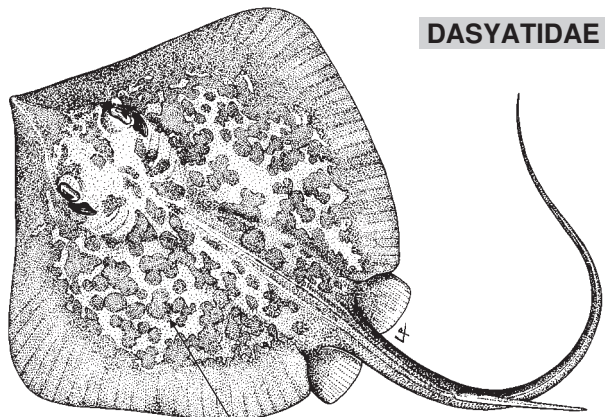
Size: To 75 cm disc width.

Fisheries: Occasionally caught by shore anglers.

Habitat and biology: A common inshore stingray, often in shallow bays and sheltered sandy beaches, especially in summertime, moving to deeper waters to a depth of about 100 m during winter. Feeds on crustaceans such as crabs, shrimps, and mantis shrimps, and on small bony fishes.

Remarks: Previously confused with *D. pastinaca* and *D. marmorata* which do not occur in the area.

conspicuous bright blue blotches and branching lines on a golden background

**DASYATIDAE*****Dasyatis violacea* (Bonaparte, 1832)**

Synonyms: *Pteroplatytrygon violacea* (Compagno et al., 1989).

FAO names: **En** - Blue stingray;

Fr - Pastenague violette; **Sp** - Raya látigo violeta.

Local names: Pelagic stingray; Pelagiese pylstert (Ak); Violetter Stechrochen (Gr).

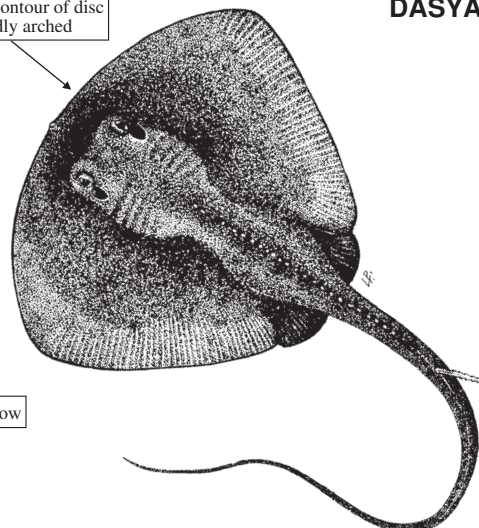
Size: To 80 cm disc width.

Fisheries: Caught by pelagic offshore longlines.

Habitat and biology: This is the only pelagic and oceanic stingray.

anterior contour of disc broadly arched

colour violet purple above and below

**DASYATIDAE**

Gymnura natalensis* (Gilchrist and Thompson, 1911)*GYMNURIDAE**

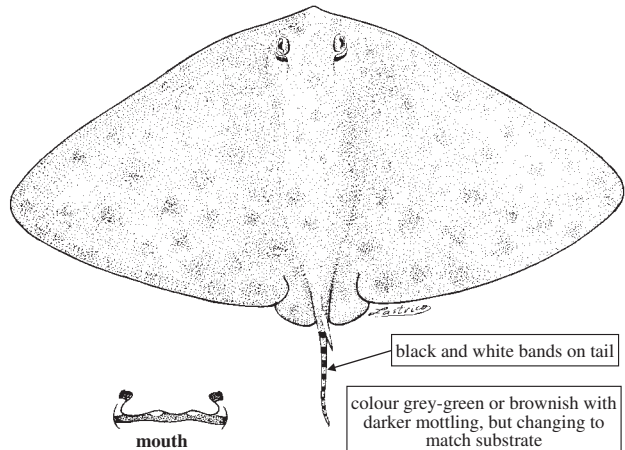
FAO names: **En** - Backwater butterflyray; **Fr** - Raia-papillon de Natal; **Sp** - Raya mariposa de Natal.

Local names: Rem-vinderrog (Ak).

Size: Up to 250 cm disc width.

Fisheries: Rarely caught by offshore trawlers and rarely by shore anglers.

Habitat and biology: Close inshore off sandy beaches, on offshore banks to a depth of 75 m. Feeds mainly on bony fishes such as flatfishes, sardines, and gurnards, and on crabs and polychaete worms.

***Myliobatis aquila* (Linnaeus, 1758)****MYLIOBATIDAE**

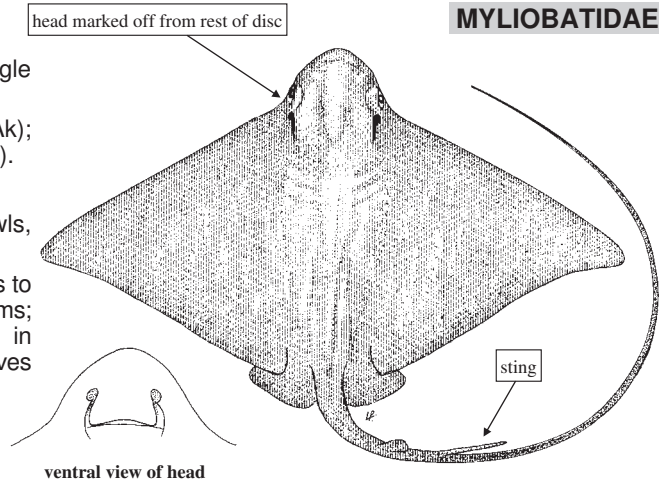
FAO names: **En** - Common eagle ray; **Fr** - Aigle commun; **Sp** - Aguila marina.

Local names: Eagle ray; Arendrog (Ak); Adlerrochen, Gewöhnlicher Adlerrochen (Gr).

Size: To about 150 cm disc width.

Fisheries: Rarely caught with bottom trawls, purse seines, longlines, and shore anglers.

Habitat and biology: Found in coastal waters to a depth of about 100 m, mainly on soft bottoms; enters lagoons and estuaries. Often found in groups. Feeds on invertebrates such as bivalves and crabs, and on small fish.

***Pteromylaeus bovinus* (Saint-Hilaire, 1817)****MYLIOBATIDAE**

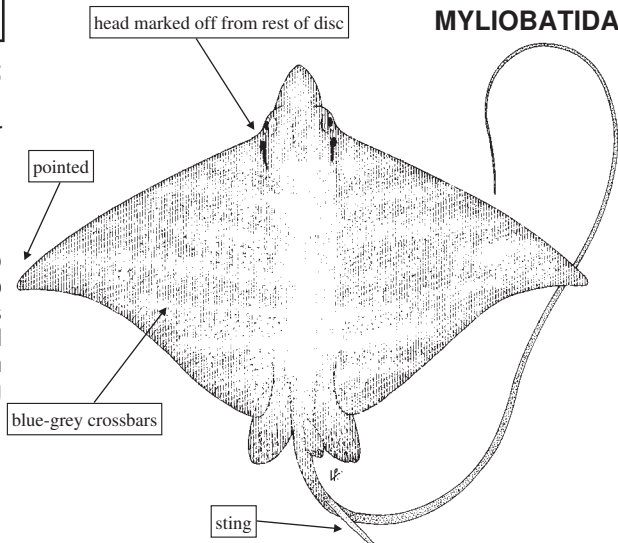
FAO names: **En** - Bull ray; **Fr** - Aigle vachette; **Sp** - Chucho vaca.

Local names: Bulrog (Ak); Afrikanischer Adlerrochen (Gr).

Size: To about 180 cm disc width.

Fisheries: Rarely caught with bottom trawls.

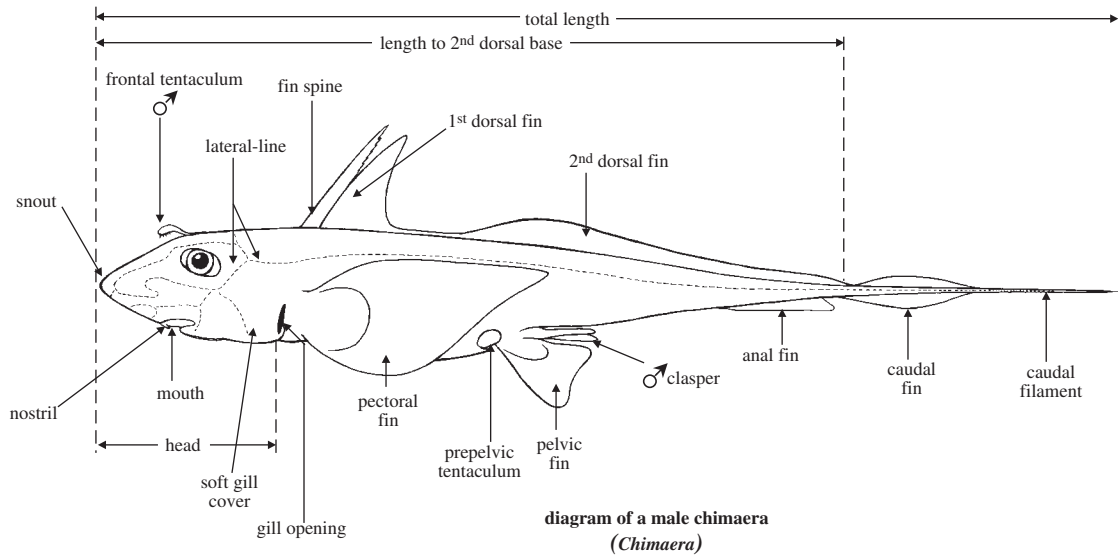
Habitat and biology: A coastal species, to depths of about 100 m; often found close to soft bottoms. Feeds mainly on invertebrates such as crabs, bivalves, and squid, and small fish. Possibly present only along the northern coast of Namibia (absent in the cold upwelling waters).



CHIMAERAS

There are 6 species of chimaeras in Namibia. They are usually caught incidentally in bottom trawls and are not normally found in great numbers. However, in some places they are considered a delicacy and represent a potential resource for further exploitation.

TECHNICAL TERMS AND MEASUREMENTS



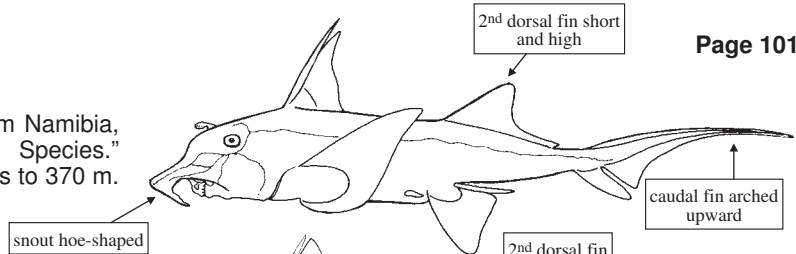
Order CHIMAERIFORMES - Chimaeras

A cartilaginous skeleton; a simple external gill opening on each side of head; naked skin; 2 dorsal fins, the first with a long spine; elongate tapering tail. Three families found in Namibia.

CALLORHINCHIDAE

Elephantfish

A single species reported from Namibia, included in the "Guide to Species." Demersal, from shallow depths to 370 m. Size to 1.2 m total length.

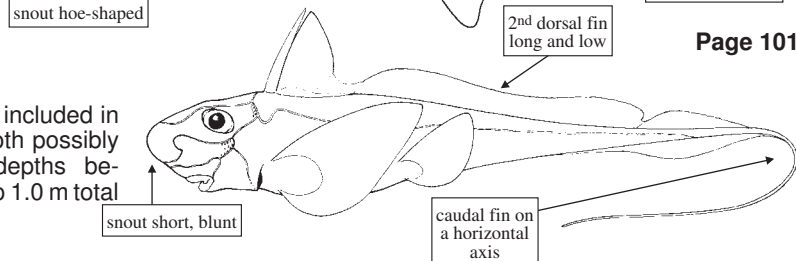


Page 101

CHIMAERIDAE

Shortnose chimaeras

Two species in Namibia, both included in the "Guide to Species" and both possibly undescribed. Demersal in depths between 400 and 1 200 m. Size to 1.0 m total length.

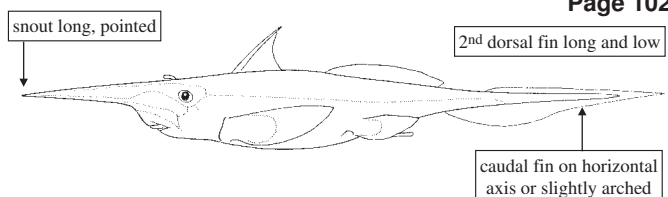


Page 101

RHINOCHIMAERIDAE

Longnose chimaeras

Three species in 3 genera from Namibia, all included in the "Guide to Species." Demersal in depths between 200 and 1 100 m. Size to 1.3 m total length.



Page 102

***Callorhynchus capensis* Duméril, 1865**

(plate III, 23)

CALLORHINCHIDAE

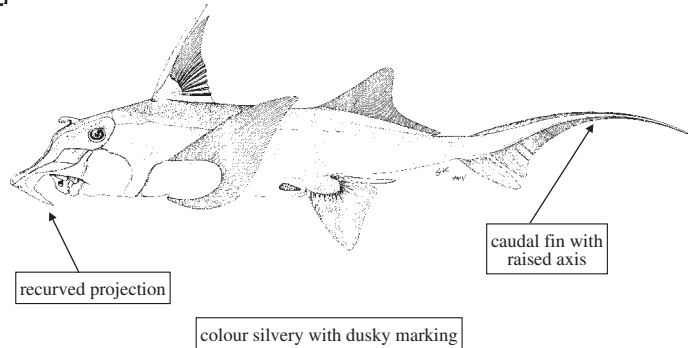
FAO names: **En** - Cape elephantfish;
Fr - Masca du Cap; **Sp** - Pejegallo del Cabo.

Local names: Elephantfish; Josef (Ak); Totenkopfchimäre (Gr).

Size: To 1.2 m total length.

Fisheries: Caught with bottom trawls and commonly by shore anglers.

Habitat and biology: A demersal species of the continental shelf, from shallow coastal waters to a depth of 370 m. Feeds on a wide variety of invertebrates such as sea urchins, bivalves, shrimp, crabs, gastropods, and small fish. Produces egg-cases that are spindle shaped, with broad horizontal flanges.

***Chimaera* sp.****CHIMAERIDAE**

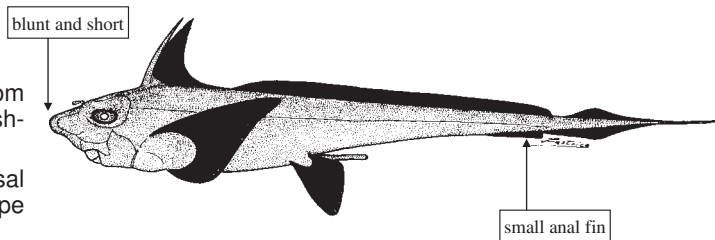
FAO names: **En** - Cape chimaera;
Fr - Chimère du Cap; **Sp** - Quimera del Cabo.

Local names: Kaapse chimaera (Ak).

Size: To 1 m total length.

Fisheries: Occasionally caught in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: A demersal species found on the continental slope from depths of 680 to around 1 000 m.

***Hydrolagus* sp.****CHIMAERIDAE**

FAO names: **En** - Brown chimaera;
Fr - Chimère brunette; **Sp** - Quimera castaña.

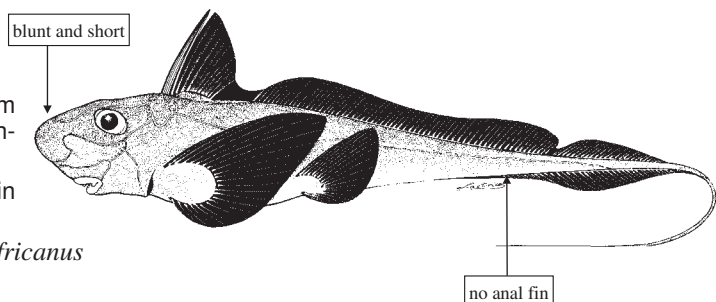
Local names:

Size: To about 70 cm total length.

Fisheries: Occasionally caught in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: Demersal in depths between 400 and 1 200 m.

Remarks: This species is probably *H. africanus* (Gilchrist, 1992).



Harriotta raleighana* Goode and Bean, 1895*RHINOCHIMAERIDAE**

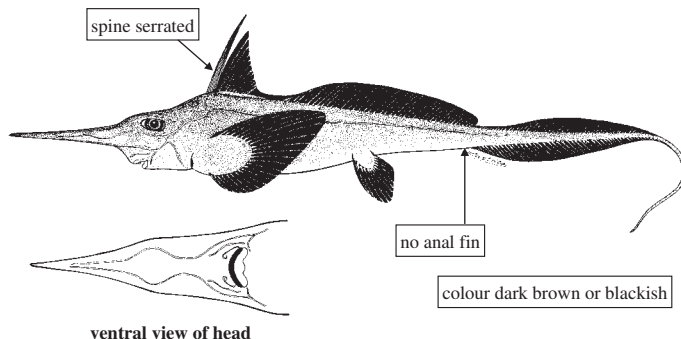
FAO names: **En** - Narnownose chimaera; **Fr** - Chimère de Raleigh; **Sp** - Quimera de Raleigh.

Local names:

Size: To 1 m total length.

Fisheries: Rarely caught in bottom trawls.

Habitat and biology: A bottom living species of the upper slope, found from depths of about 850 to 1 100 m.



ventral view of head

***Neoharriotta pinnata* (Schnakenbeck, 1931)**

(plate III, 24)

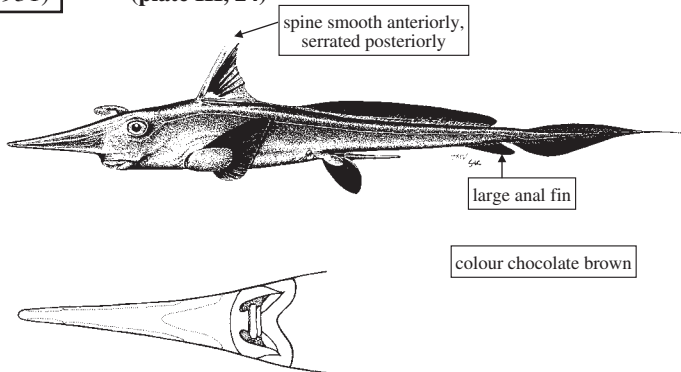
FAO names: **En** - Sicklefim chimaera; **Fr** - Chimère faucillée; **Sp** - Narigón aletas de haz.

Local names:

Size: To 1.3 m.

Fisheries: Caught occasionally in bottom trawls.

Habitat and biology: A demersal species of the upper slope, from depths of 200 to 470 m. Feeds on swimming crabs. Egg cases spindle-shaped, with broad horizontal flanges.



ventral view of head

Rhinochimaera atlantica* Holt and Byrne, 1909*RHINOCHIMAERIDAE**

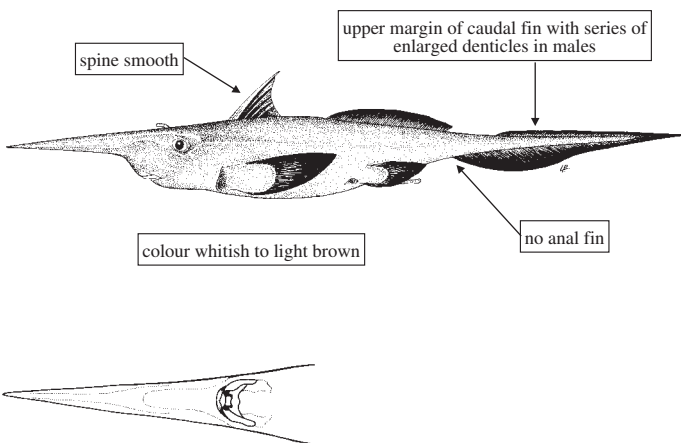
FAO names: **En** - Spearnose chimaera; **Fr** - Chimère nez lance; **Sp** - Narigón sierra.

Local names:

Size: To 1.3 m.

Fisheries: Rarely caught in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: Found on the continental slope, from depths of about 550 to 1 100 m.



ventral view of head

BONY FISHES

Using mostly secondary literature, we estimate there are around 410 species in 137 families of bony fishes that occur in marine waters of Namibia. These include the species of primary commercial importance, such as hakes, pilchard, and horse mackerel, and many other species that are exploited as bycatch in the bottom trawl and purse-seine fisheries. We include 195 species in 63 families in the “Guide to Species” as being of present or potential interest to fisheries. In order that researchers can also identify, at least to family level, the other species of bony fishes that may also be encountered in fisheries, we include identification clues to all 137 families that are reported from Namibia in the “Guide to Orders and Families.” This includes many deep water and rare forms that may never be important in fisheries, but that may be important as ecological indicators while managing marine resources. We recommend that this preliminary family guide be consulted before attempting to determine the species, since many important characters listed in the family guide are not repeated in the “Guide to Species.” A check list of bony fishes is included in the Appendix to serve as a working list from which researchers can more accurately assess and study the bony fish resources of Namibia.

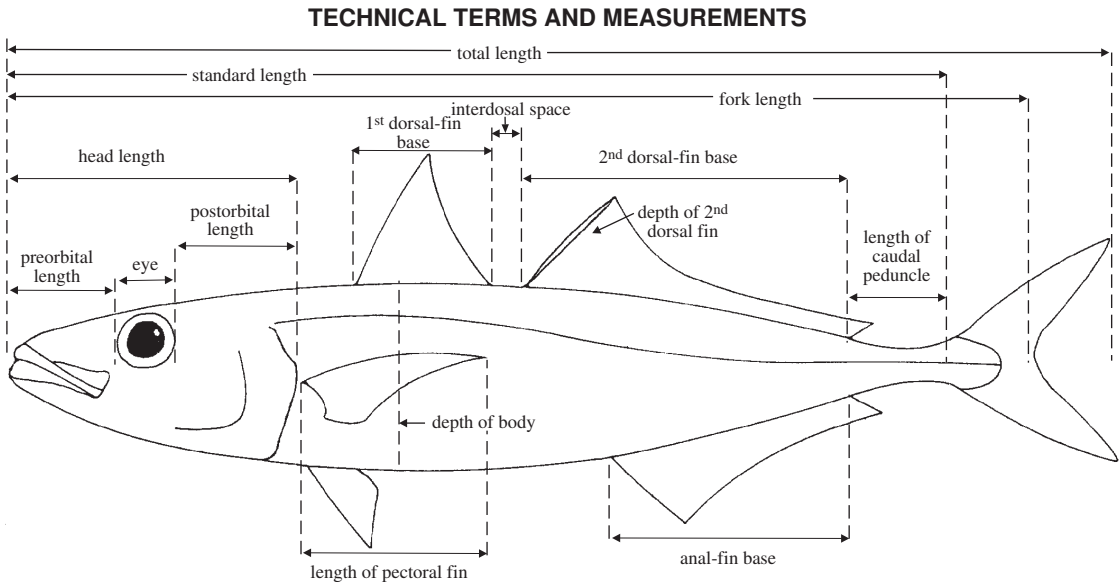


Fig. 1 Common external measurements

Note: although all measurements are shown vertical and horizontal, all distances are measured as the straight line, shortest distance between the 2 anatomical points

General Nomenclature of the External Morphology

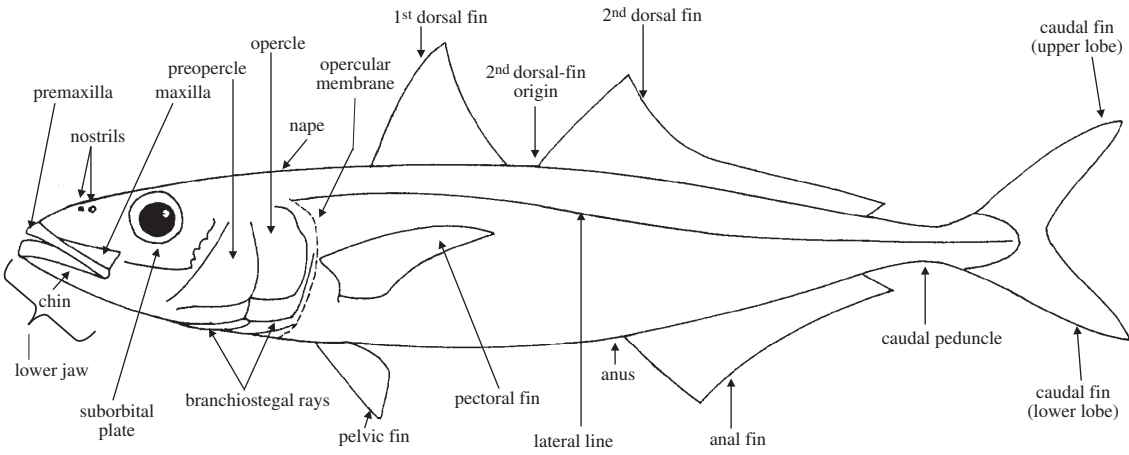


Fig. 2 Common external features

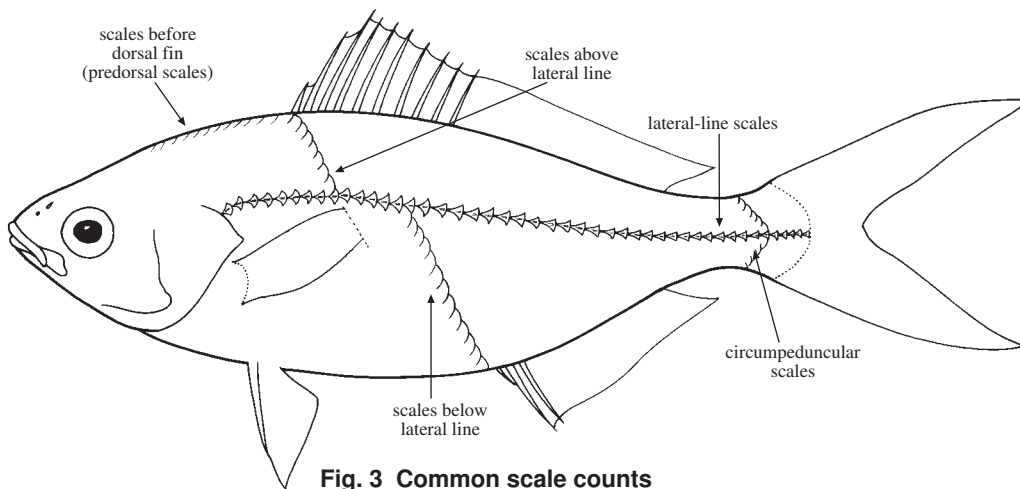


Fig. 3 Common scale counts

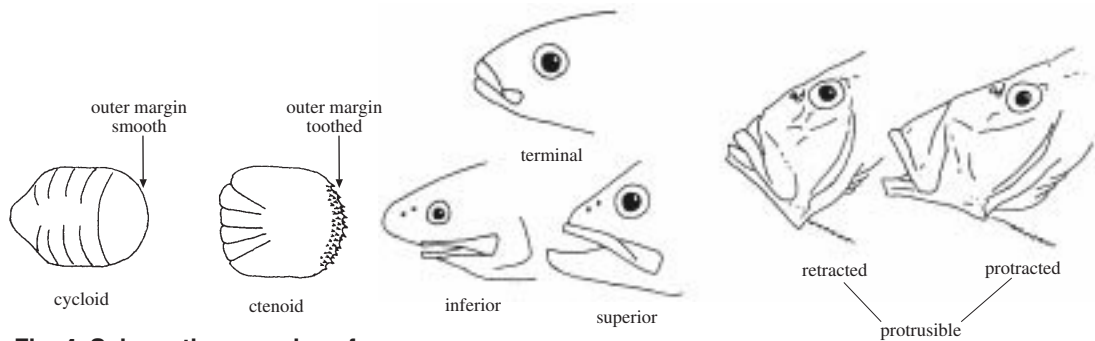


Fig. 4 Schematic examples of typical scales

Fig. 5 Mouth position and protrusibility

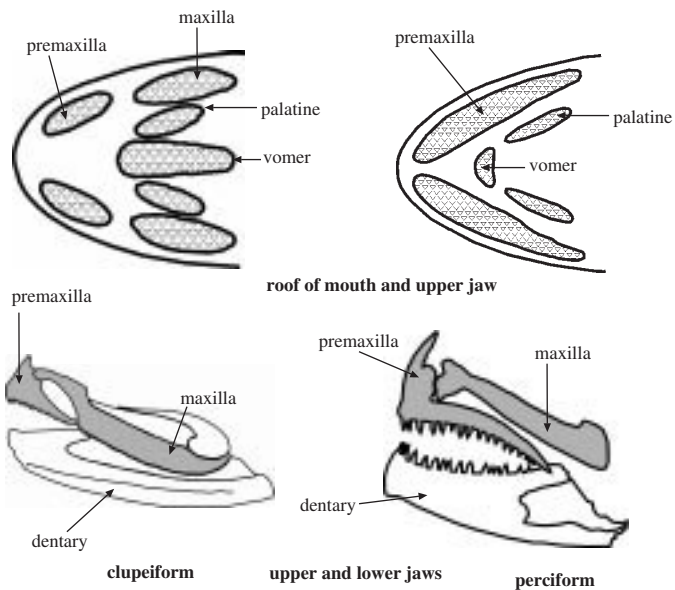


Fig. 6 Teeth-bearing bones in the roof of the mouth and upper jaw, and alternative positions of premaxilla and maxilla in ancestral (clupeiform) versus derived (perciform) fishes

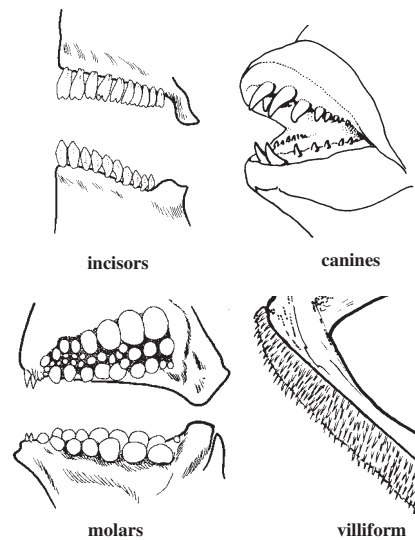


Fig. 7 Common types of teeth

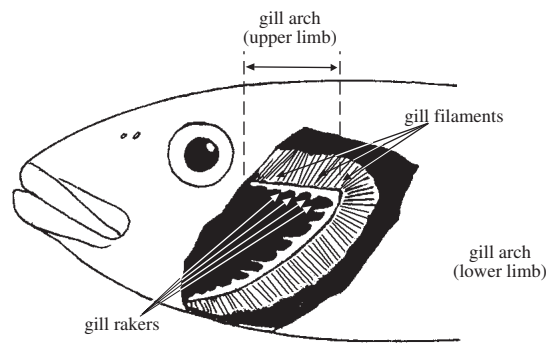


Fig. 8 Position of 1st left gill arch with gill cover removed

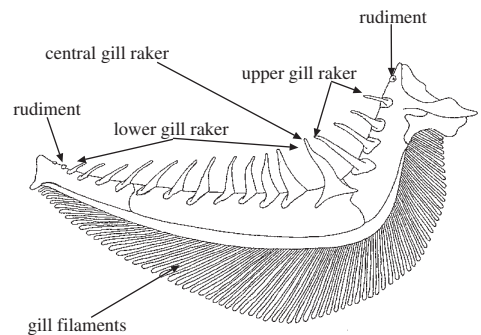


Fig. 9 Structures of 1st left gill

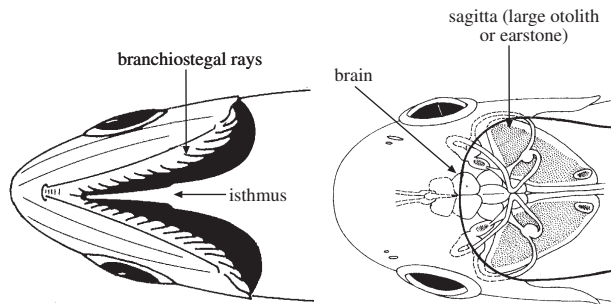


Fig. 10 Structures on ventral side of head

Fig. 11 Position of sagittal otolith inside head (dorsal view)

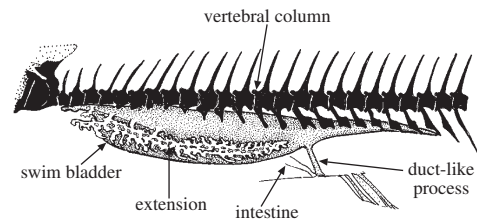


Fig. 12 Position of swimbladder inside body cavity

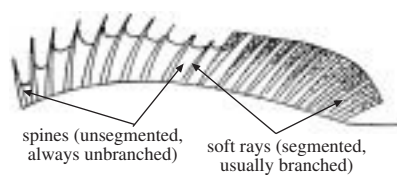


Fig. 13 Example of a continuous dorsal fin of a spiny-rayed fish

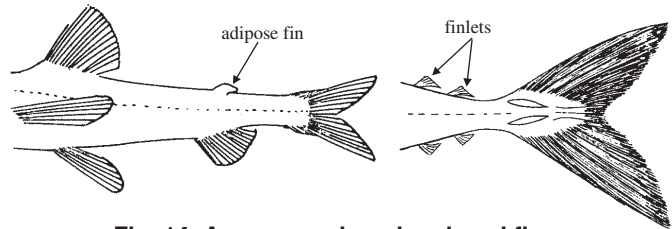


Fig. 14 Accessory dorsal and anal fins: adipose fin and finlets

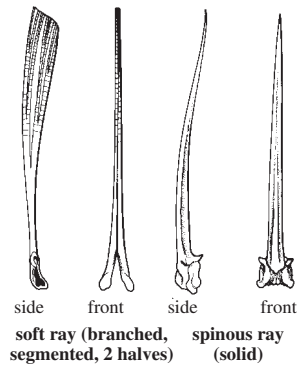


Fig. 15 Construction of fin rays

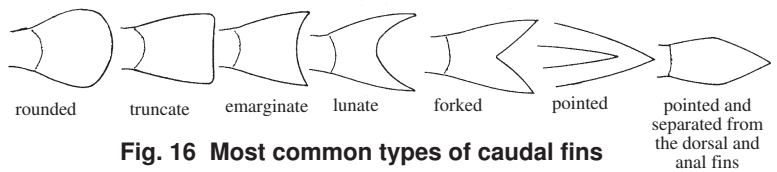


Fig. 16 Most common types of caudal fins

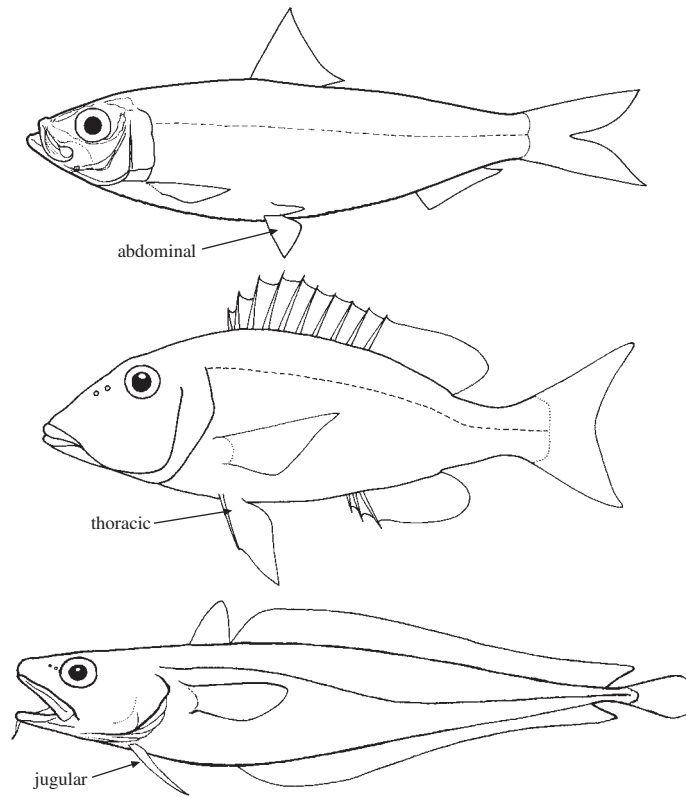


Fig. 17 Positions of pelvic fins

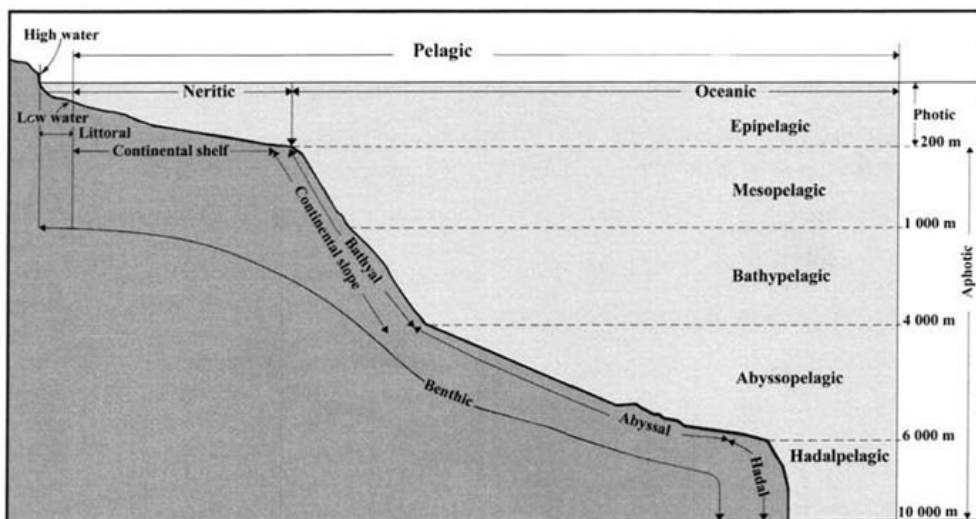


Fig. 18 Marine habitat divisions

TECHNICAL TERMS

Abdomen - The belly; ventral area between breast and anus.

Abyssal - Region of the ocean floor between the depths of 4 000 and 6 000 m (Fig. 18).

Abyssopelagic - Pelagic zone between the depths of 4 000 and 6 000 m (Fig. 18).

Acute - Pointed or sharp.

Adipose eyelid - Transparent fleshy tissue covering part or all of the eye in some fishes.

Adipose fin - Small, fleshy fin without rays or spines on the dorsal midline between the dorsal and caudal fins of some fishes (Fig. 14).

Air bladder - See swim bladder.

Anadromous - Living mostly in seawater and migrating to freshwater to spawn.

Anal fin - Unpaired median fin supported by rays on the tail behind the anus (Fig. 2).

Anterior - Pertaining to the front portion.

Antrorse - Turned forward.

Anus - Posterior opening of the intestine through which wastes are excreted; vent (Fig. 1).

Attenuate - Elongate; extended or drawn out.

Axil - Angular area between pectoral fin and body, equivalent to arm-pit.

Axillary scale - An elongate or modified scale at the insertion of the pelvic or pectoral fins in some fishes.

Band - Usually refers to an oblique or irregular marking.

Bar - Elongate nearly straight vertical marking.

Barbel - Elongate fleshy tentacle-like sensory projection, usually about the mouth or head.

Base of fin - Part of the fin that attaches to the body (Fig. 1).

Bathyl zone - Region of the ocean floor from the edge of the continental shelf (at around 200 m) down to a depth of about 4 000 m (Fig. 18).

Bathypelagic - Pelagic zone between the depths of about 1 000 and 4 000 m (Fig. 18).

Benthic - Referring to the ocean bottom; benthic species are closely associated with and often attached to the ocean bottom (Fig. 18).

Benthopelagic - Inhabiting waters above but near the bottom or, spending part of the time on the bottom and part of the time further up in the pelagic zone.

Branchiostegal membranes - Membranes on the ventral interior surface of the gill cover supported by branchiostegal rays.

Branchiostegal rays, branchiostegals - Bony rays supporting the membranes inside the lower part of the gill cover (Fig. 10).

Breast - Ventral surface of body between the isthmus and pectoral or pelvic fins.

Canine - Slender conical tooth, often enlarged and elongate (Fig. 7).

Carapace - A hardened encasing covering all or part of the body.

Cardiform - Small short conical outgrowths in a close-set patch or band; usually refers to a band of close-set small conical teeth.

Catadromous - Living in freshwater and migrating to the sea to spawn.

Caudal fin - The tail fin (Fig 1).

Caudal peduncle - Posterior part of body between the rear parts of the dorsal and anal fins, and the caudal fin (Fig. 1).

Cheek - Side of head below and slightly behind the eye.

Cirrus - Small, fleshy protuberance.

Compressed - Flattened laterally; a body shape much deeper than wide.

Continental rise - The gentle slope at the base of the continental slope.

Continental shelf - The flattened edge of the continental land mass between the coast and the continental slope (generally, the continental subtidal zone down to a depth of about 200 m) (Fig. 18).

Continental slope - The sloping edge of the continental land mass, generally beginning at a depth of around 200 m.

Crenulate - Scalloped or wavy edge.

Ctenoid scale - Scale with a spiny posterior margin (Fig. 4).

Cycloid scale - Scales with smooth posterior margin, without spines on posterior margin (Fig. 4).

Deciduous - Easily shed or rubbed off; refers to scales.

Demersal - Free living close to the sea bottom.

Denticle - Small tooth-like structures.

Depressed - Flattened from top to bottom; body shape much wider than deep.

Distal - Near outer edge; far end from point of attachment or centre of body.

Dorsal - Back or upper body.

Dorsal fin - Median fin supported by spines and/or rays; sometimes separated into 2 or more fins with the anterior most fin designated the first (Fig. 2).

Edentulous - Without teeth.

Emarginate - Margin slightly concave; usually pertains to a caudal fin shape (Fig. 16).

Entire - Smooth or straight margin.



Estuary - Partly enclosed body of seawater that is measurably diluted with fresh water.

Falcate - Sickle-shaped.

Finlets - Small separate dorsal and anal fins (Fig. 14).

Forked - Branched; caudal fin shape with distinct upper and lower lobes and the posterior margin of each lobe relatively straight or gently curved (Fig. 16).

Furcate - Forked.

Fusiform - Spindle-shaped; body shape that is cylindrical and tapering at both ends.

Gas bladder - See swim bladder.

Gill - Organ for exchange of dissolved gasses between water and the blood stream; gill tissues are supported by a gill arch in fishes (Figs 8, 9).

Gill arch - Bony angular skeleton that supports the gill filaments and gill rakers (Figs 8, 9).

Gill filaments - Principal site of gas exchange in the gill (Fig. 9).

Gill membrane - Membranes along the posterior and ventral margin of the gill cover.

Gill rakers - Bony projections along the front edge of the gill arch that help prevent food from escaping through the gill opening (Figs. 8, 9).

Gular plate - Bony plate covering the underside of the head as exemplified in elopiform fishes.

Hadal zone - Region of the ocean floor between the depths of 6 000 and 10 300 m (Fig. 18).

Herbivore - Feeding on plants.

Illicium - Modified isolated first ray of the dorsal fin that forms the 'fishing gear' (rod and lure) in anglerfishes.

Incisor - Flattened chisel-shaped tooth (Fig. 7).

Inferior - Mouth position on underside of head with snout projecting in front of mouth (Fig. 5).

Insertion - The anterior or posterior point of attachment of a fin to the body.

Interdorsal - The space on the back between the bases of the first and second dorsal fins (Fig. 1).

Interopercle - The lower anterior bone of the gill cover (Fig. 2).

Interorbital - The space on top of the head between the eyes.

Intertidal - The area of the shore covered at high tide and exposed at low tide.

Isthmus - The part of the underside of the head separating the gill openings (Fig. 10).

Jugular - Pertaining to the throat region; pelvic fins are jugular when positioned on the underside of the head in front of the pectoral fins (Fig. 17).

Lanceolate - Spear- or lance-shaped.

Lateral - The side or toward the side.

Lateral line - A vibration sensory canal along the side of the body with a series of pores that communicate to

the outside of the body, often through specialized pored lateral-line scales (Figs 2, 3).

Littoral - The intertidal area of the shore.

Lunate - Crescent-shaped; caudal-fin shape that is deeply emarginate with narrow lobes (Fig. 16).

Mandible - Lower jaw.

Maxilla - The bone in the upper jaw behind the premaxilla. In ancestral fishes the maxilla is the principal bone of the upper jaw that bears teeth; in derived fishes it generally does not bear teeth and serves more to support the premaxilla (Fig. 6).

Median - The middle or toward the midline.

Median fins - Fins that lie on the midline; the dorsal, anal, and caudal fins.

Melanophore - Cell carrying black or greyish pigments.

Mesopelagic - Pelagic zone between the depths of about 200 and 1 000 m (Fig. 18).

Molar - A low, blunt, rounded tooth for crushing and grinding (Fig. 7).

Nape - The dorsal part of the body just behind the occiput or hard dorsal region of the skull (Fig. 2).

Neritic - Nearshore; the zone of water above the continental shelves.

Occiput - Upper back part of the head or skull.

Ocellus - A round eye-like spot or marking with a marginal ring.

Opercle - The large posterior upper bone of the gill cover (Fig. 2).

Operculum - The gill cover composed of the preopercle, opercle, interopercle, and subopercle.

Orbital - Referring to the eye, particularly the bones surrounding the eye.

Origin - The anterior point of attachment of fins to the body (anterior insertion) (Fig. 2).

Otolith - A small bone or earstone in the inner ear of fishes (Fig. 11).

Paired fin - Fins found on both sides of the body; the pectoral and pelvic fins (Fig. 2).

Palate - Roof of the mouth.

Palatine - Paired bones on each side of the palate, behind and lateral to the vomer, often bearing teeth (Fig. 6).

Papilla - A small fleshy projection.

Pectoral fins - Paired fins on the sides behind the gill cover (Fig. 2).

Pelagic - The division of the marine environment composed of all the ocean's water; living in the open seas or oceans (Fig. 18).

Pelvic fins - Paired fins in front of the anus (Fig. 2), sometimes called the ventral fins. Ancestral fishes generally have the pelvic fins in the abdominal position while derived fishes generally have the pelvic fins in the thoracic or jugular position (Fig. 17).

Peritoneum - The membrane that lines the body cavity, covers the heart, and forms mesenteries.

Pharyngeal teeth - Teeth on the elements of the last gill arch or pharyngeal arch.

Photophore - Light-emitting organ or luminous spot.

Posterior - Pertaining to the rear portion.

Premaxilla - Anterior bone in the upper jaw (see **maxilla**) (Fig. 6).

Preopercle - The upper anterior bone of the gill cover (Fig. 2).

Preorbital - Referring to the region before the eye; a suborbital bone in front and below the eye.

Principal caudal-fin ray - The branched and unbranched caudal-fin rays that reach the rear margin of the fin.

Procurent caudal-fin ray - Small ray at the insertions of the fin that do not reach the rear margin.

Proximal - Part nearest the centre of the body.

Pseudobranchium - A small patch of gill-like filaments on the upper inner surface of the gill cover.

Ray - Supporting element of fins (Fig. 15). Ray is sometimes used as a collective term to designate both soft rays (see below) and spines (see below). It is also sometimes used to designate exclusively, soft rays.

Rounded - A caudal-fin shape with the terminal border smoothly convex (Fig. 16).

Rudiment - A poorly developed structure, usually small and minimally functional at best. These include small unbranched soft rays and small gill rakers at the ends of a gill arch.

Scute - A modified scale that can be enlarged, hardened, ridged, keeled, or spiny.

Serrate - With saw-like teeth along a margin.

Setae - Bristles or hardened hair-like projections.

Soft dorsal fin - The portion of the dorsal fin supported by soft rays (Fig. 13).

Soft ray - A fin support element that is composed of 2 halves (paired laterally), segmented, and usually flexible and branched (Fig. 15). Rarely, soft rays can be pointed and stiff and appear to be a spine.

Spine - A fin support element that is unpaired laterally, unsegmented, unbranched and usually stiff and pointed (Fig. 15); also refers to slender sharply pointed bony processes not associated with fins.

Spinous dorsal fin - The anterior portion of the dorsal fin that is supported by spines (Fig. 13).

Spinule - A small spine.

Standard length - The distance from the anteriormost point on the fish to the posterior end of the vertebral column that is generally equivalent to the end of the hypural plates (and recognized externally by the crease between the tail and caudal fin when the caudal fin is bent laterally); sometimes abbreviated as SL (Fig. 1).

Stripe - Generally refers to a horizontal nearly straight side marking.

Subopercle - The lower rear bone in the gill cover (Fig. 2).

Subtidal - The ocean floor below the low tide mark.

Superior - Above or on the upper surface; a mouth position with the snout behind the anterior opening of the mouth (Fig. 5).

Swim bladder - A gas-filled sac lying under the backbone in the abdominal cavity, used in buoyancy; also referred to as air bladder or gas bladder (Fig. 12).

Symphysis - The articulation between 2 bones; often refers to the anterior juncture between the 2 halves of either jaw.

Terminal - Pertaining to at the end, or situated at the end; a mouth position with the opening of the mouth even with the tip of the snout (Fig. 5).

Thoracic - Referring to the breast region; pelvic fins are thoracic in position when directly below the pectoral fins (Fig. 17).

Truncate - Terminating abruptly in a square end; a caudal-fin shape with a vertically straight terminal border (Fig. 16).

Vent - See anus.

Ventral - The bottom, lower surface, or abdominal part of the body.

Ventral fins - See **pelvic fins**.

Vertical fins - The median fins; the dorsal, caudal, and anal fins.

Vestige - Small or underdeveloped structure, as in a rudiment.

Villiform - Many small slender outgrowths, usually in a close-set patch or carpet; often refers to slender teeth forming velvety bands (Fig. 7).

Vomer - An unpaired median bone on the roof of the mouth (Fig. 6).



Order **ALBULIFORMES - Bonefishes**

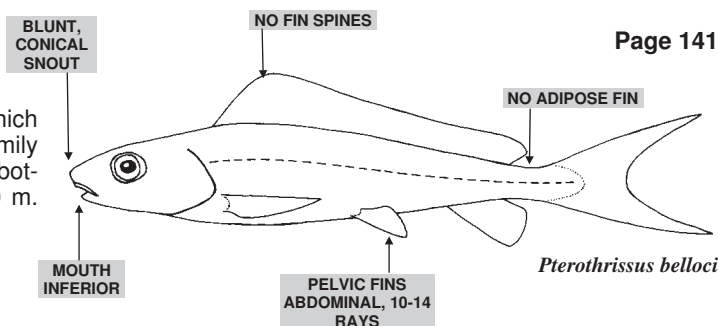
Pelvic fins abdominal, with 10 to 14 rays; no fin spines; dorsal adipose fin absent; mouth inferior, below blunt conical snout. One family and species in Namibia.

ALBULIDAE

Page 141

Bonefishes

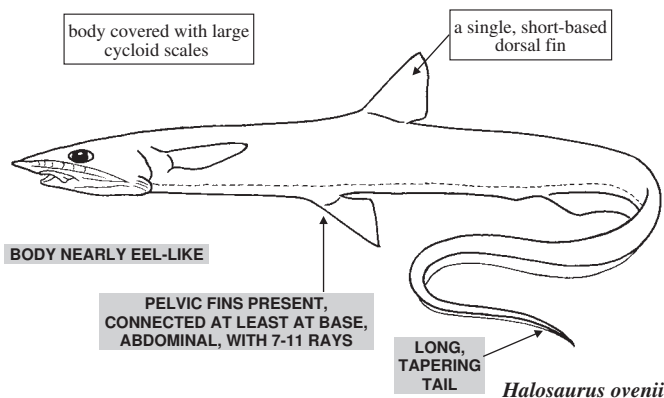
One species reported from Namibia which is sometimes put in the separate family Pterothrissidae. Demersal on muddy bottoms between depths of 50 and 500 m. Size to about 35 cm standard length.

Order **NOTACANTHIFORMES - Halosaurs and Spiny Eels**

Body nearly eel-like, with long, tapering tail; pelvic fins present, connected at least at base, abdominal, with 7 to 11 rays. Two species in 2 families reported from Namibia.

HALOSAURIDAE**Halosaurs**

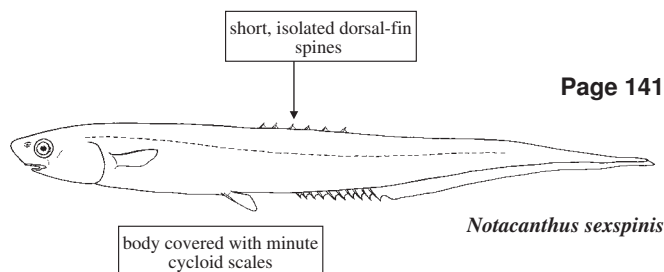
One species reported from Namibia, not included in the "Guide to Species." Benthopelagic in deeper waters, from depths of over 400 to 1 700 m. Sometimes caught in trawls. Size to about 60 cm.

**NOTACANTHIDAE**

Page 141

Spiny eels

One species reported from Namibia. Demersal at depths between 360 and 1 100 m. Size to 60 cm.

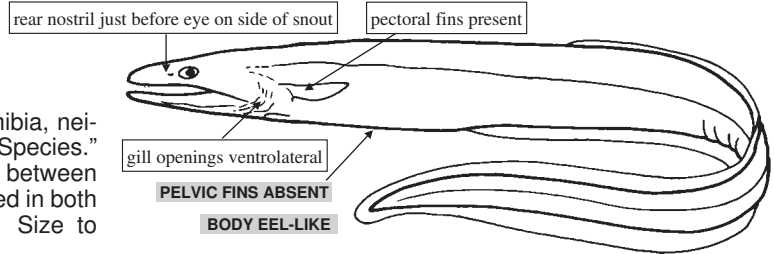


Order **ANGUILLIFORMES - Eels**

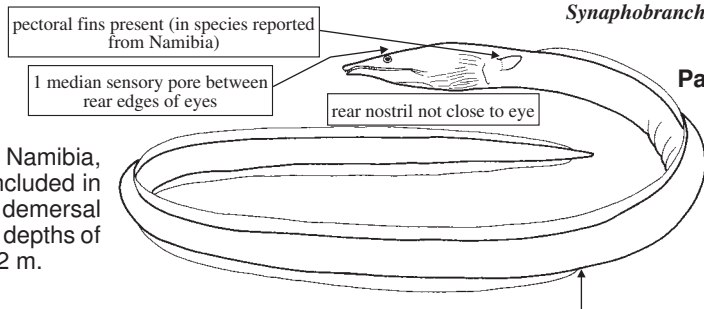
Body eel-like; pelvic fins absent. Seven families of eels known from Namibia.

SYNAPHOBRANCHIDAE**Cutthroat eels**

Two species reported from Namibia, neither included in the "Guide to Species." Demersal, commonly in depths between 800 and 2 000 m but also reported in both deeper and shallower depths. Size to nearly 1 m.

*Synaphobranchus kaupi***OPHICHTHIDAE****Snake eels**

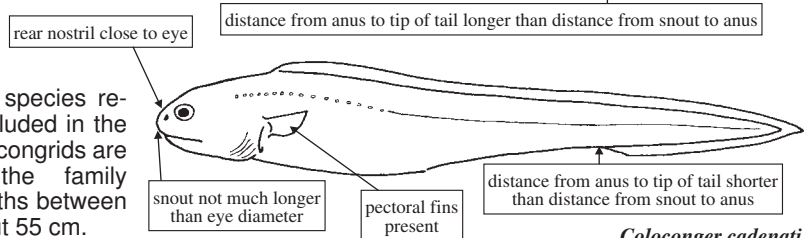
Five genera and 5 species from Namibia, 2 are commonly reported and included in the "Guide to Species." Usually demersal in shallow water but 1 species to depths of 500 m. Maximum size to over 2 m.



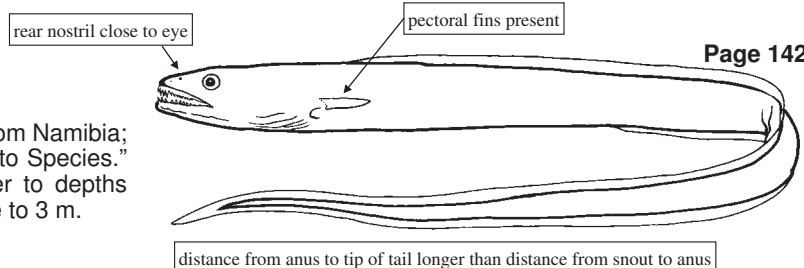
Page 141

COLOCONGRIDAE**Coloconger eels**

Only a few specimens of 1 species reported from Namibia; not included in the "Guide to Species." The colocongrids are sometimes included in the family Congridae. Demersal in depths between 270 and 600 m. Size to about 55 cm.

*Coloconger cadenati***CONGRIDAE****Conger eels**

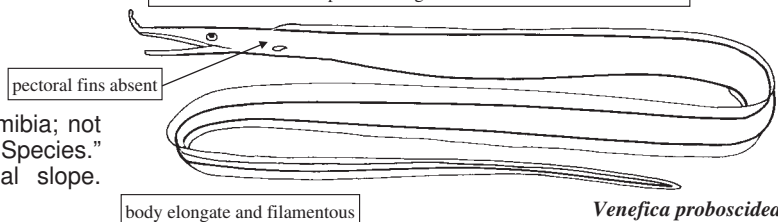
Four genera and 4 species from Namibia; 2 are included in the "Guide to Species." Demersal from shallow water to depths over 1 300 m. Maximum size to 3 m.



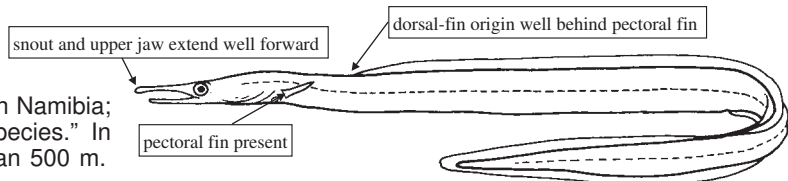
Page 142

NETTASTOMATIDAE**Duckbill eels**

One species reported from Namibia; not included in the "Guide to Species." Demersal on lower continental slope. Size to 1 m total length.

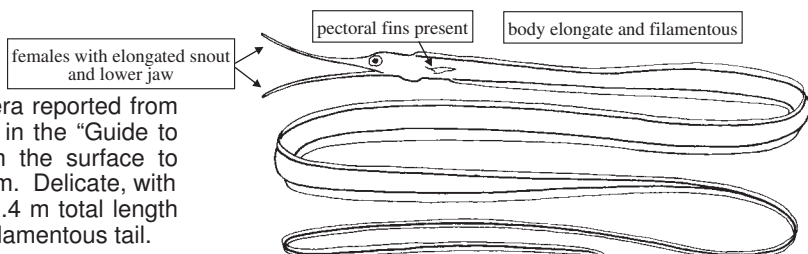
*Venefica proboscidea***DERICHTHYIDAE****Long neck eels**

A single species found so far in Namibia; not included in the "Guide to Species." In midwater at depths deeper than 500 m. To 40 cm total length.

*Nessorhamphus ingolfianus*

NEMICHTHYIDAE**Snipe eels**

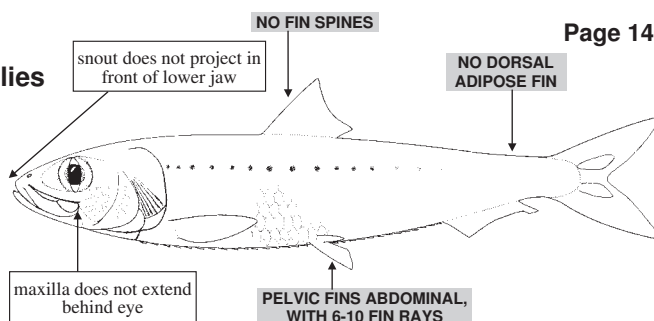
Three species in 2 genera reported from Namibia, none included in the "Guide to Species." Pelagic from the surface to depths of around 2 000 m. Delicate, with maximum size to over 1.4 m total length but much consists of a filamentous tail.

*Nemichthys scolopaceus***Order CLUPEIFORMES - Herrings and allies**

Pelvic fins abdominal; with 6 to 10 fin rays; no fin spines; no dorsal adipose fin. Two families in Namibia.

CLUPEIDAE**Herrings, sardines, pilchards, and allies**

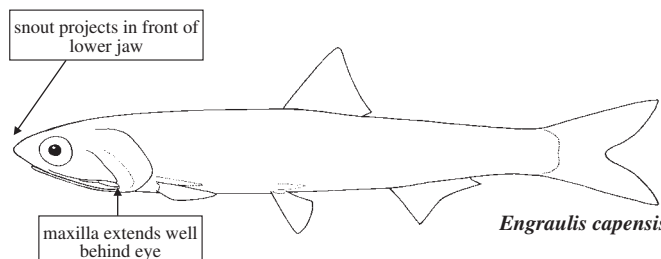
Five species in 3 genera reported from Namibia; 1 species questionable from Namibia and not included in the "Guide to Species." Pelagic, to depths of around 350 m. Maximum size to about 30 cm standard length.



Page 142

ENGRAULIDAE**Anchovies**

Most probably, only 1 species in Namibia. Pelagic, to depths of 350 m. Maximum size to 17 cm standard length.



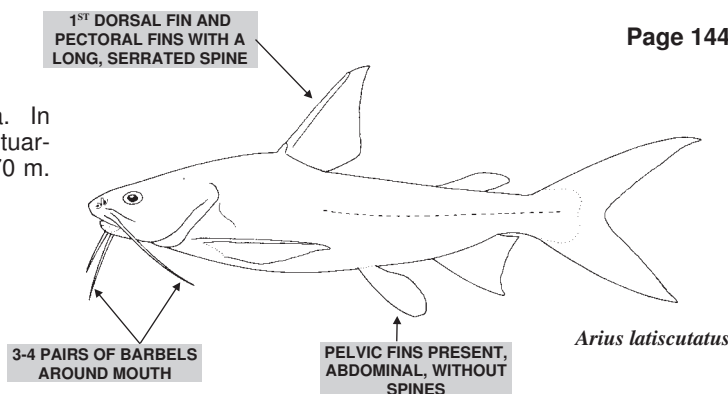
Page 143

Order SILURIFORMES - Catfishes

Pelvic fins present, abdominal, without spines; first dorsal fin and pectoral fins with a long, serrated spine; 3 or 4 pairs of barbels around mouth. Only 2 species in 1 family reported from Namibia.

ARIIDAE**Sea catfishes**

Two species reported from Namibia. In shallow coastal waters, including estuaries and rivers, to depths of around 70 m. Maximum size to 55 cm total length.



Page 144

Arius latiscutatus

Order **SALMONIFORMES - Smelts and allies**

Pelvic fins abdominal; no fin spines; dorsal adipose fin usually present; maxillae and premaxillae toothless; luminescent organs present in some, not always conspicuous. The salmoniform fishes of Namibia are deep-sea species of little importance to fisheries; none are included in the "Guide to Species." At least 4 families reported from Namibia but others may also eventually be found.

ALEPOCEPHALIDAE

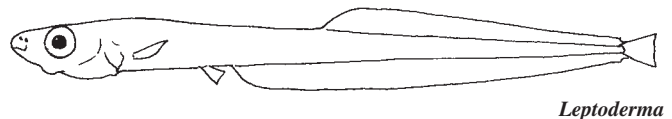
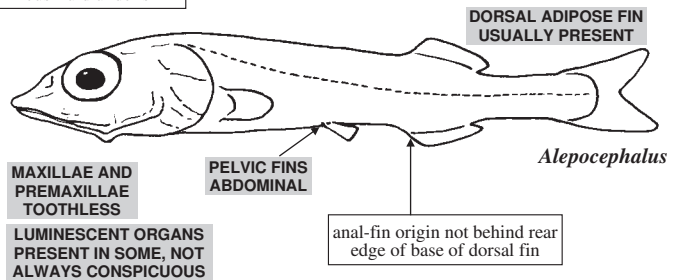
no tube behind shoulder girdle; no sac of luminous fluid under skin

NO FIN SPINES

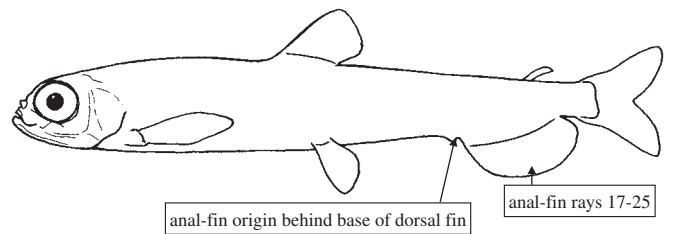
Page 144

Slickheads

So far, 11 species in 9 genera reported from Namibia. Usually benthopelagic in depths below 1 000 m. Maximum size to around 60 cm standard length. One slickhead, *Bajacalifornia megalops*, is commonly caught as bycatch in the orange roughy fishery and included in the "Guide to Species."

**BATHYLAGIDAE****Deepsea smelts**

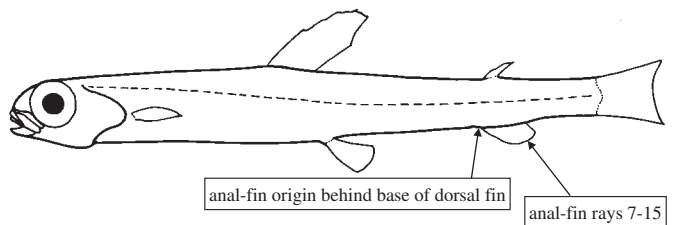
One species reported from Namibia. Benthopelagic in depths between 540 and 630 m. Size to around 17 cm total length.



Bathylagus glacialis

MICROSTOMATIDAE**Microstomatid smelts**

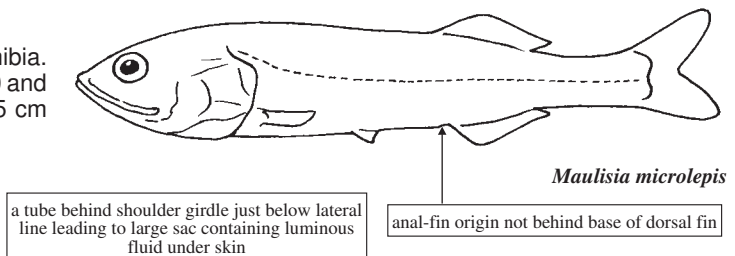
Two species reported from Namibia. Some members of this family referred to the Argentinidae by some authors.



Nansenia

PLATYROCTIDAE**Tube shoulders**

One species reported from Namibia. Benthopelagic in depths between 500 and 2 000 m. Maximum size to about 25 cm standard length.



Maulisia microlepis

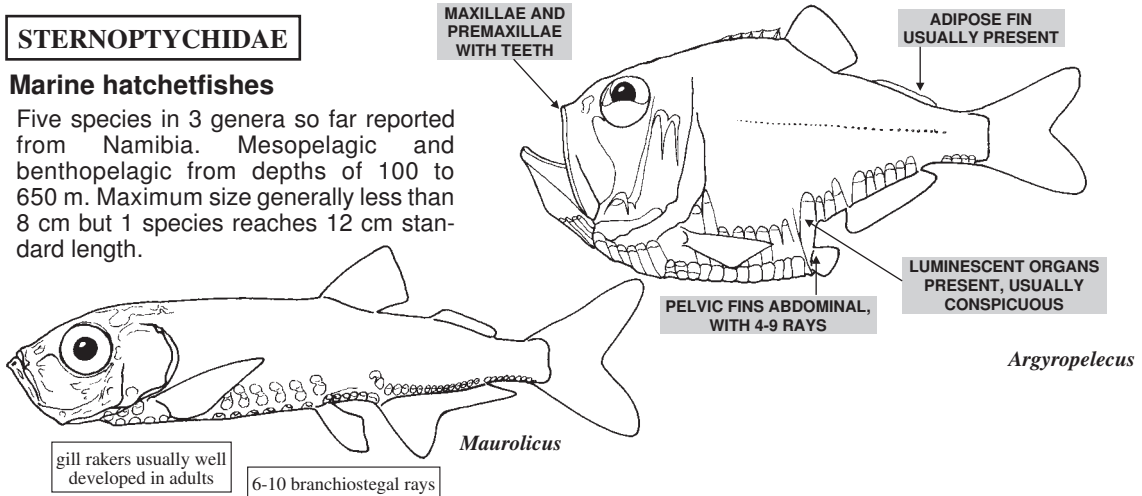
Order STOMIIFORMES - Bristlemouths and allies

Pelvic fins abdominal, with 4 to 9 rays; adipose fin usually present; maxillae and premaxillae with teeth; luminescent organs present, usually conspicuous. These are mesopelagic and bathypelagic fishes presently of little importance to fisheries, but some are important in the food chain; 8 families reported from Namibia, none are included in the "Guide to Species."

STERNOPTYCHIDAE

Marine hatchettfishes

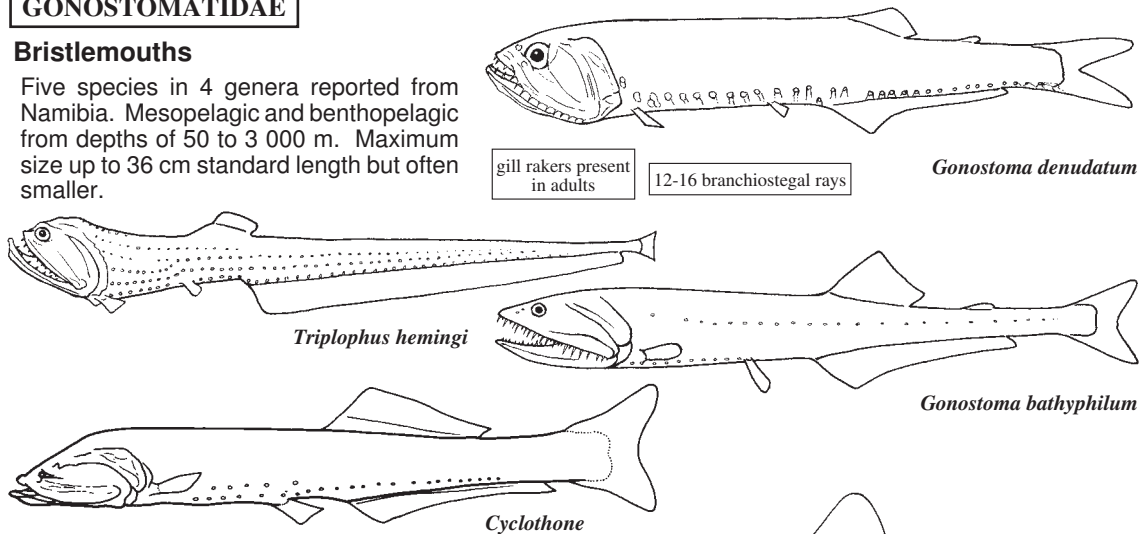
Five species in 3 genera so far reported from Namibia. Mesopelagic and bathypelagic from depths of 100 to 650 m. Maximum size generally less than 8 cm but 1 species reaches 12 cm standard length.



GONOSTOMATIDAE

Bristlemouths

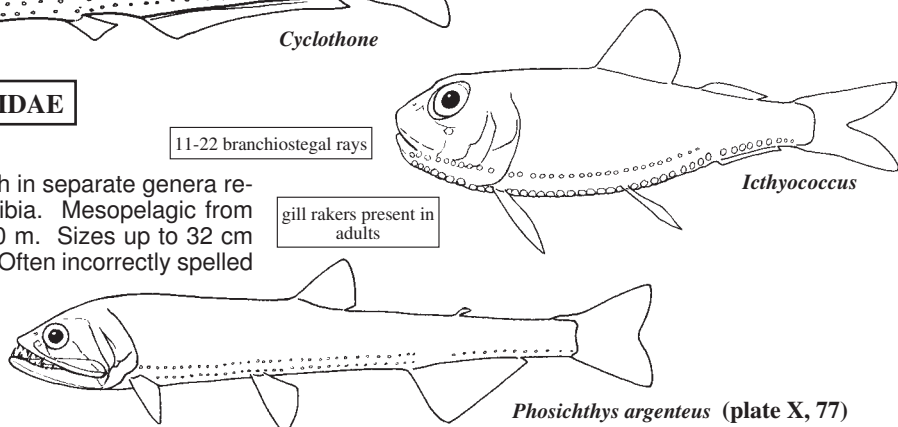
Five species in 4 genera reported from Namibia. Mesopelagic and bathypelagic from depths of 50 to 3 000 m. Maximum size up to 36 cm standard length but often smaller.



PHOSICHTHYIDAE

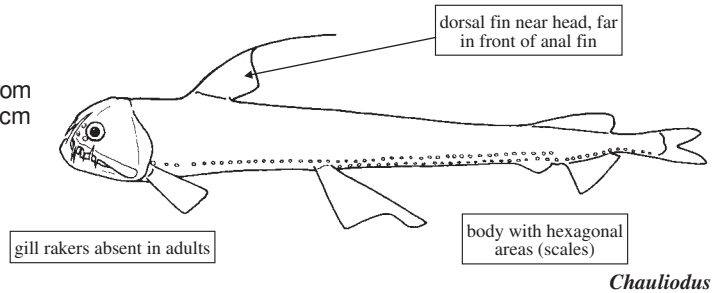
Lightfishes

Four species each in separate genera reported from Namibia. Mesopelagic from 200 to over 1 000 m. Sizes up to 32 cm standard length. Often incorrectly spelled Photichthyidae.

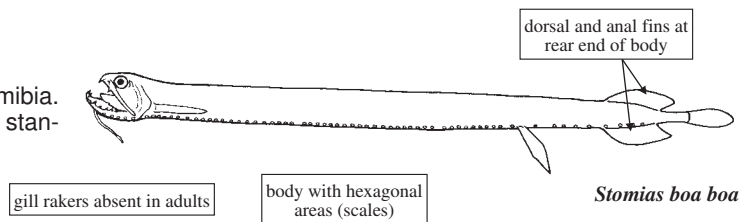


CHAULIODONTIDAE**Viperfishes**

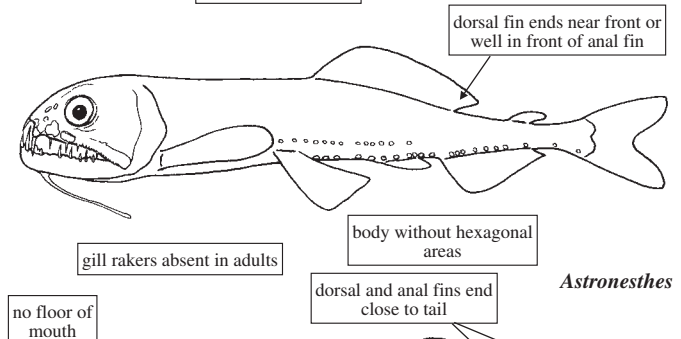
Two species in 1 genus reported from Namibia. Mesopelagic. Size to 30 cm standard length.

**STOMIIDAE****Scaly dragonfishes**

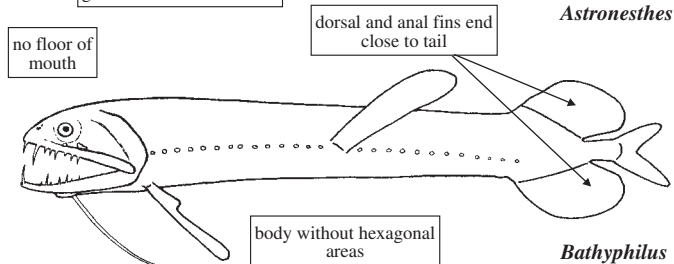
One species reported from Namibia. Mesopelagic. Size to about 32 cm standard length.

**ASTRONESTHIDAE****Snaggletooths**

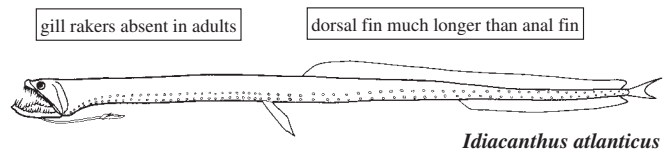
Seven species in 3 genera possibly from Namibia. Mesopelagic. Size to 36 cm standard length.

**MELANOSTOMIIDAE****Scaleless black dragonfishes**

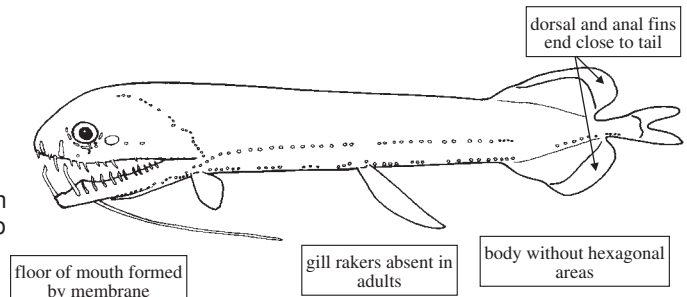
Eleven species in 5 genera possibly from Namibia. Mesopelagic. Maximum size to about 40 cm total length but generally much smaller.

**IDIACANTHIDAE****Sawtailfishes**

A single species confirmed from Namibia. Mesopelagic. To 43 cm.

**MALACOSTEIDAE****Loosejaws**

One unidentified species possibly in Namibia. Mesopelagic. Maximum size to around 15 cm standard length.



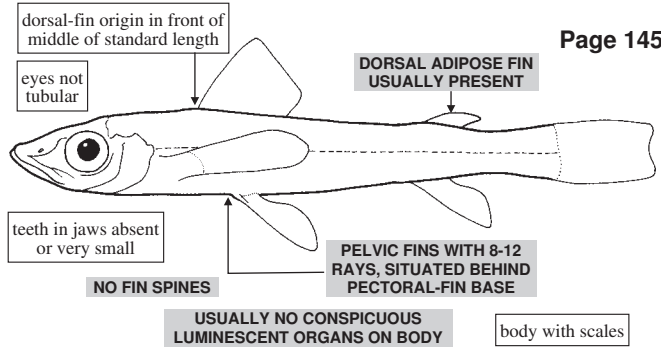
Order **AULOPIFORMES - Greeneyes, Lizardfishes, and allies**

Pelvic fins with 8 to 12 rays, situated behind pectoral-fin base; no fin spines; dorsal adipose fin usually present; usually no conspicuous luminescent organs on body. Members of 7 families reported from Namibia, 2 of these families contain species that are common in fisheries and they are included in the "Guide to Species."

CHLOROPHTHALMIDAE

Greeneyes

Possibly 5 species in 3 genera reported from Namibia; 2 species are commonly caught in trawls and are included in the "Guide to Species." Demersal on upper and lower continental slope. Size to around 40 cm standard length.

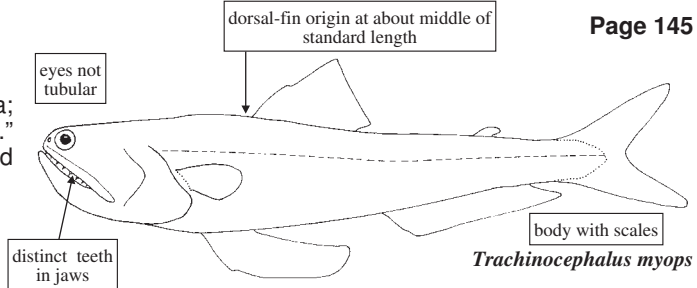


Page 145

SYNODONTIDAE

Lizardfishes

A single species reported from Namibia; included in the "Guide to Species." Demersal to depths of 200 m. To around 35 cm standard length.



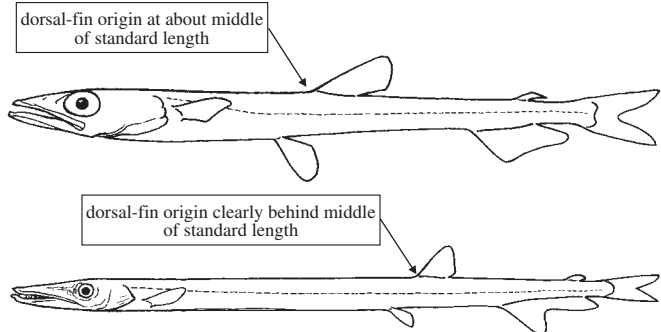
Page 145

Trachinocephalus myops

NOTOSUDIDAE

Wavyfishes

Two species from Namibia, neither included in "Guide to Species." Mesopelagic and benthopelagic. To about 27 cm standard length.

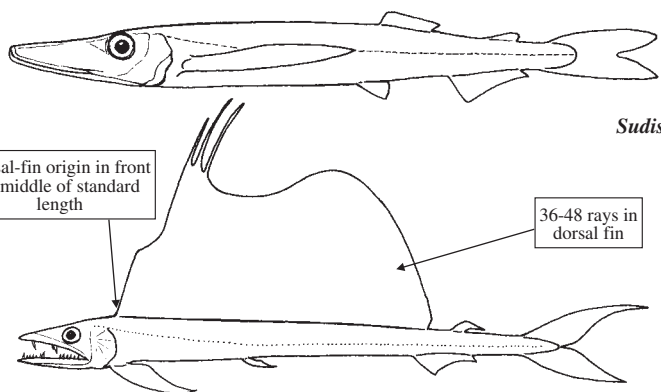


Macroparalepis

PARALEPIDIDAE

Barracudinas

Four species in 4 genera reported or expected from Namibia; none included in "Guide to Species." Epi- to mesopelagic in depths between 10 and 2 000 m. Maximum size to over 50 cm standard length



Sudis

ALEPISAUROIDAE

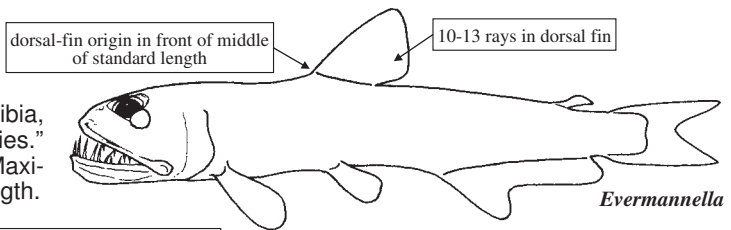
Lancetfishes

One species reported from Namibia, not included in "Guide to Species." Pelagic. Maximum size to around 1.5 m standard length.

Alepisaurus ferox

EVERMANNELLIDAE**Sabertooth fishes**

Two species in 2 genera from Namibia, neither included in the "Guide to Species." Mesopelagic from 400 to 1 000 m. Maximum size around 12 cm standard length.

*Evermannella*

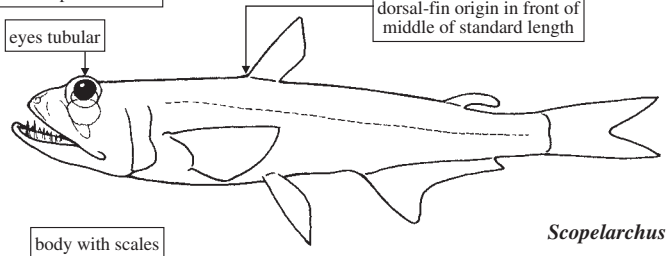
body without scales except lateral line

eyes tubular

dorsal-fin origin in front of middle of standard length

SCOPELARCHIDAE**Pearleyes**

Three species in 2 genera expected from Namibia, none included in the "Guide to Species." Meso- to bathypelagic. Maximum size around 12 cm standard length.

*Scopelarchus***Order MYCTOPHIFORMES - Blackchins and Lanternfishes**

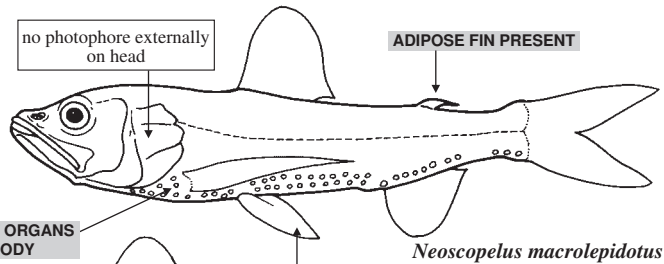
Pelvic fins usually with 8 rays, situated behind pectoral-fin base; adipose fin present; conspicuous luminescent organs usually present on body; maxillae toothless. Deep sea and bathypelagic species, often abundant and an important source of food for fishes but presently of no importance in fisheries, although they are of commercial importance in other areas. Two families reported, 5 species are common and included in the "Guide to Species."

NEOSCOPELIDAE**Blackchins**

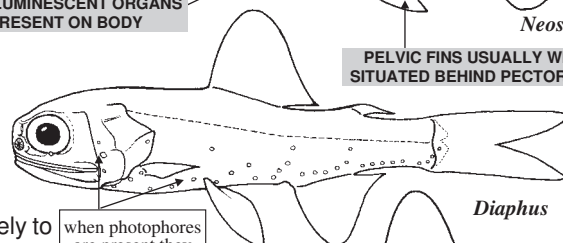
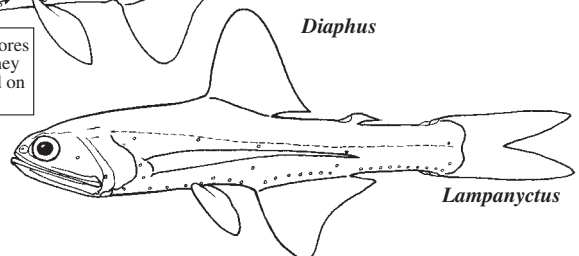
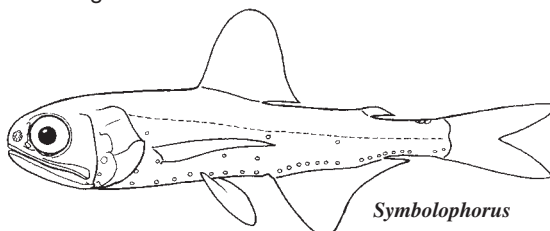
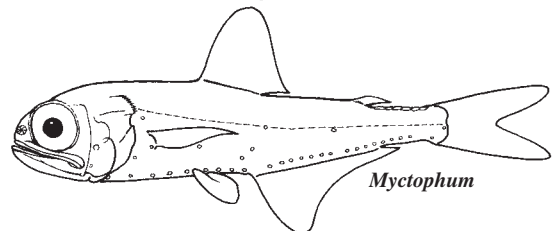
One species reported from Namibia, not included in the "Guide to Species." Bathypelagic at depths between 300 and 800 m. Maximum size 25 cm standard length.

MAXILLAE
TOOTHLESSno photophore externally
on head

ADIPOSE FIN PRESENT

CONSPICUOUS LUMINESCENT
ORGANS
USUALLY PRESENT ON BODY*Neoscopelus macrolepidotus*PELVIC FINS USUALLY WITH 8 RAYS,
SITUATED BEHIND PECTORAL-FIN BASE**MYCTOPHIDAE****Lanternfishes**

Forty-nine species reported or likely to be found off Namibia, 5 of these are common and are included in the "Guide to Species." Mostly mesopelagic fishes. Maximum size for most species is less than or around 10 cm standard length although a couple of species reach 20 to 25 cm standard length.

when photophores
are present they
are also found on
the head*Diaphus**Lampanyctus**Symbolophorus**Myctophum*

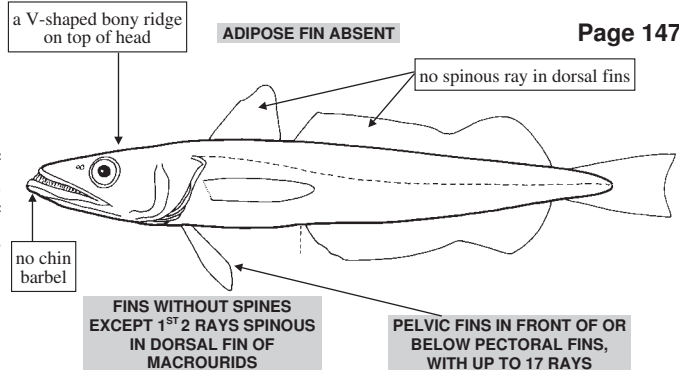
Order GADIFORMES - Hakes, Cods, and allies

Pelvic fins situated in front of or below pectoral fins, with up to 17 rays; fins without spines except first 2 rays spinous in dorsal fin of macrourids; adipose fin absent. Three families reported from Namibia.

MERLUCCIIDAE

Hakes

Three species of *Merluccius* reported from Namibia; 2 of these species are the most important in trawl fisheries of Namibia, the third (*Merluccius polli*) infrequently caught in the northern part of Namibia. Benthopelagic between depths of about 50 and 900 m. Maximum size to 1.2 m total length.

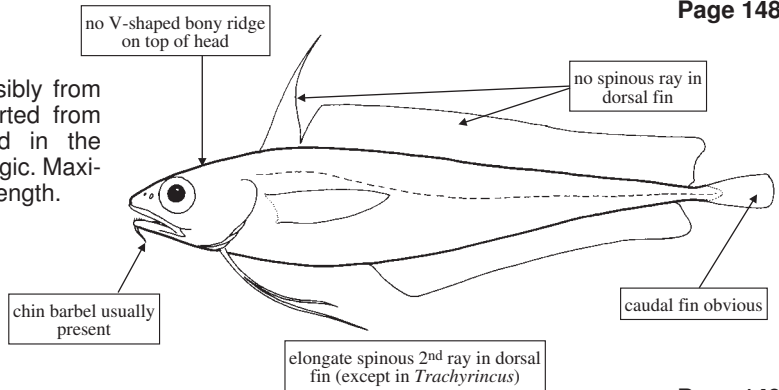


Page 147

MORIDAE

Moras

Six genera and 6 species possibly from Namibia, 3 of which are reported from several sources and included in the "Guide to Species." Benthopelagic. Maximum size to about 60 cm total length.

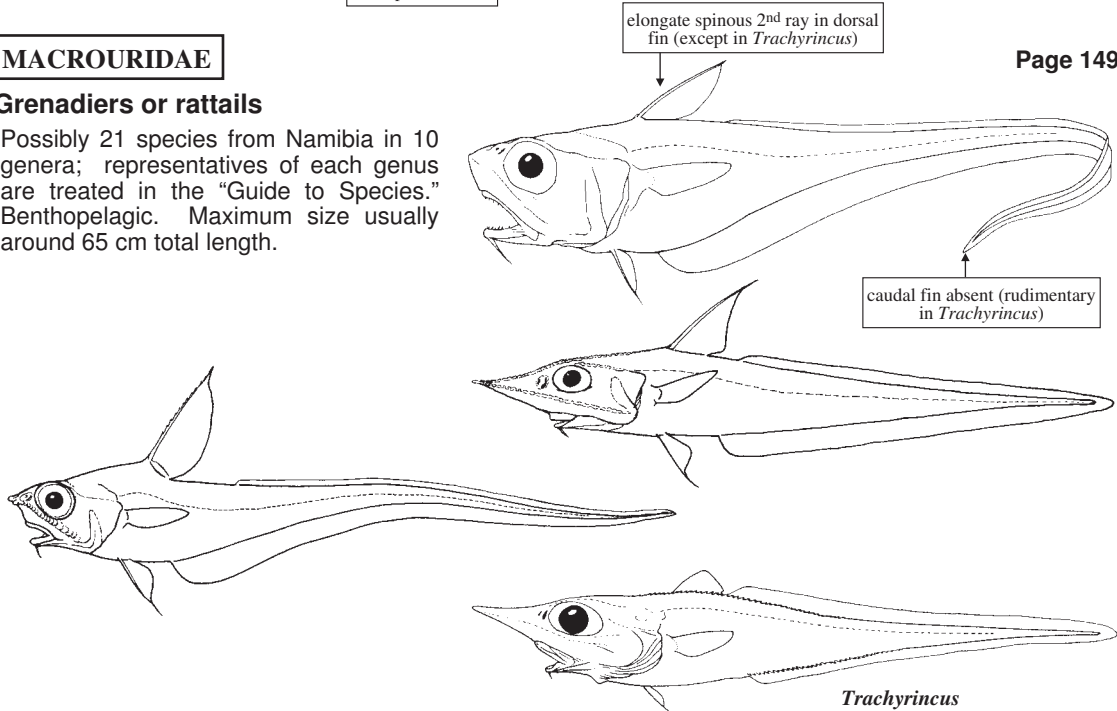


Page 148

MACROURIDAE

Grenadiers or rattails

Possibly 21 species from Namibia in 10 genera; representatives of each genus are treated in the "Guide to Species." Benthopelagic. Maximum size usually around 65 cm total length.



Page 149

Order **OPHIDIIFORMES - Cusk Eels and allies**

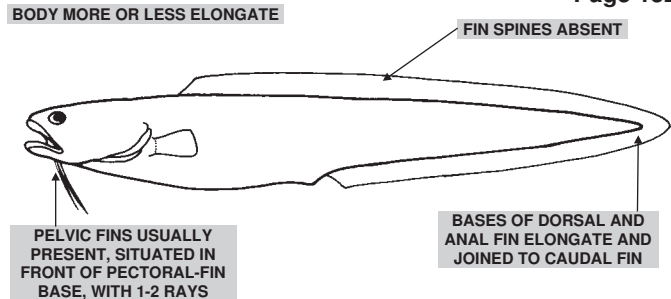
Pelvic fins usually present, situated in front of pectoral-fin base, with 1 or 2 rays; fin spines absent; body more or less elongate; bases of dorsal and anal fin elongate and joined to caudal fin. One family reported from Namibia.

OPHIDIIDAE

Page 152

Cusk eels or brotulas

Eight species in 7 genera reported from Namibia, several found in very deep water; 5 species treated in the "Guide to Species." Demersal, most species are found in depths between 200 and almost 3 000 m. Maximum size to 160 cm total length.

Order **BATRACHOIDIFORMES - Toadfishes**

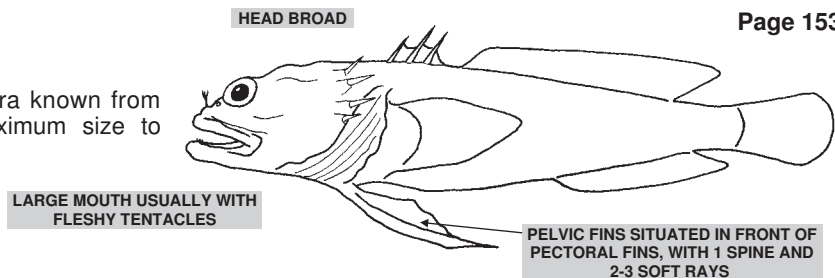
Pelvic fins situated in front of pectoral fins, with 1 spine and 2 or 3 soft rays; head broad; large mouth usually with fleshy tentacles. One family found in Namibia.

BATRACHOIDIDAE

Page 153

Toadfishes

Three species in 2 genera known from Namibia. Demersal. Maximum size to 35 cm total length.

Order **LOPHIIFORMES - Anglerfishes**

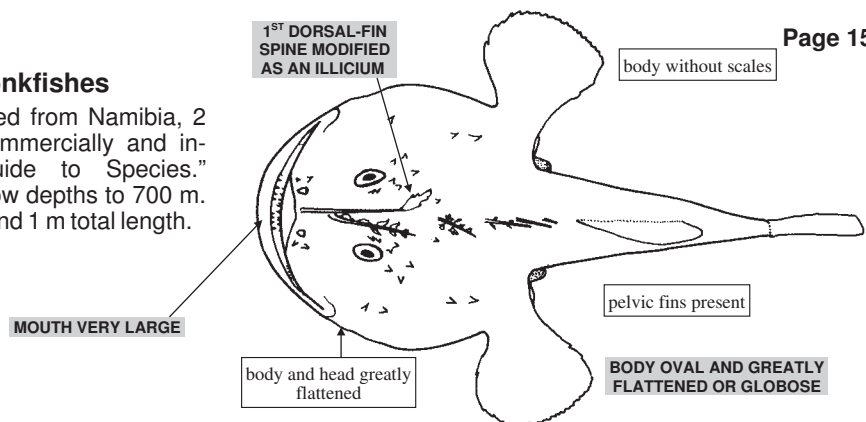
First dorsal-fin spine modified as an illicium; body oval and greatly flattened or globose; mouth very large. Eight families possibly from Namibia but most are deep-water fishes of little commercial importance; only Lophiidae are important and often caught in trawls and included in the "Guide to Species."

LOPHIIDAE

Page 154

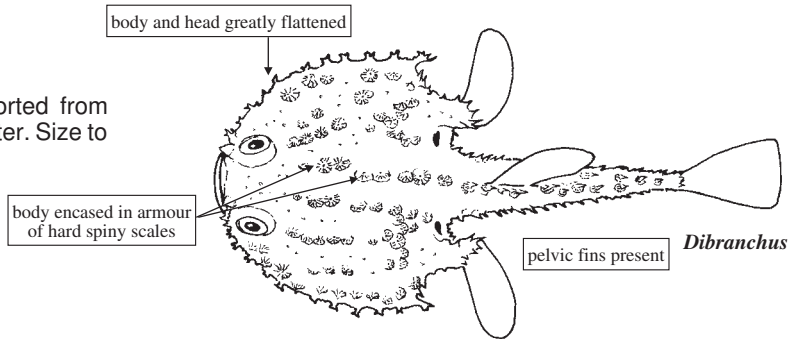
Goosefishes or monkfishes

Three species reported from Namibia, 2 species important commercially and included in the "Guide to Species." Demersal, from shallow depths to 700 m. Maximum size to around 1 m total length.

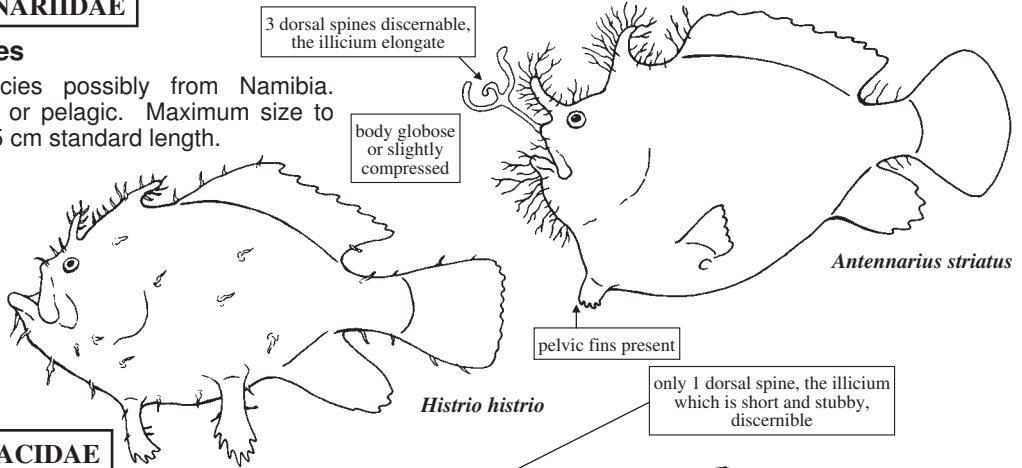


OGCOCEPHALIDAE**Batfishes**

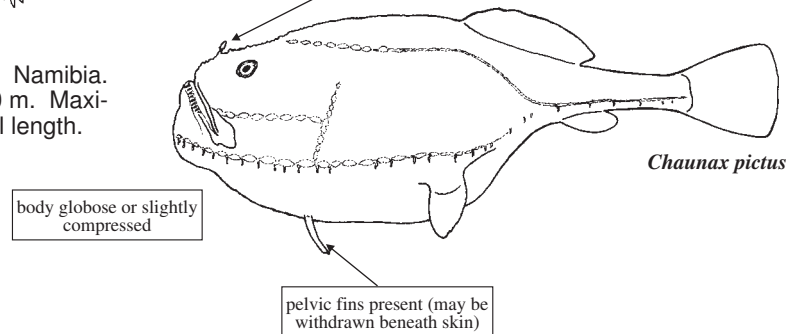
Two species in 2 genera reported from Namibia. Demersal in deep water. Size to about 14 cm standard length.

**ANTENNARIIDAE****Frogfishes**

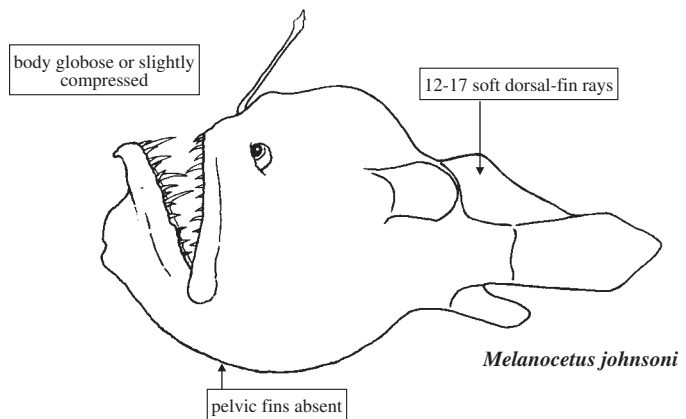
Two species possibly from Namibia. Demersal or pelagic. Maximum size to around 15 cm standard length.

**CHAUNACIDAE****Sea toads**

One species reported from Namibia. Demersal below a depth of 200 m. Maximum size to around 24 cm total length.

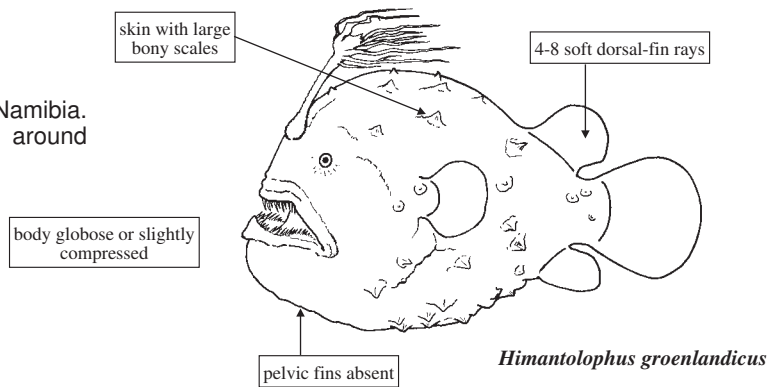
**MELANOCETIDAE****Devil anglers**

One species reported from Namibia. Mesopelagic in depths between 500 and 1 500 m. Maximum size observed less than 12 cm total length.

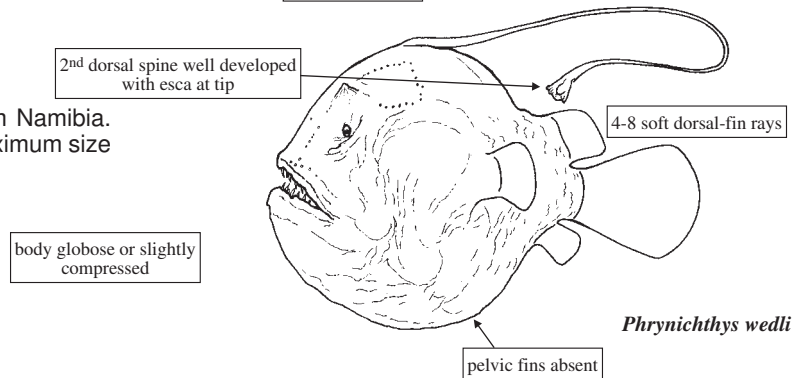


HIMANTOLOPHIDAE**Football fishes**

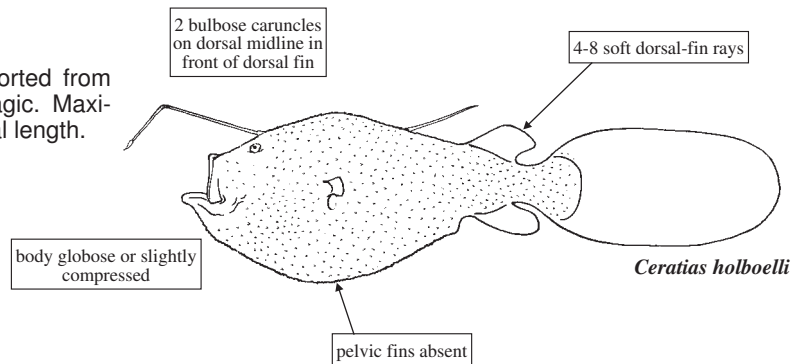
A single species reported from Namibia. Mesopelagic. Maximum size around 50 cm total length.

**DICERATHIDAE****Horned anglers**

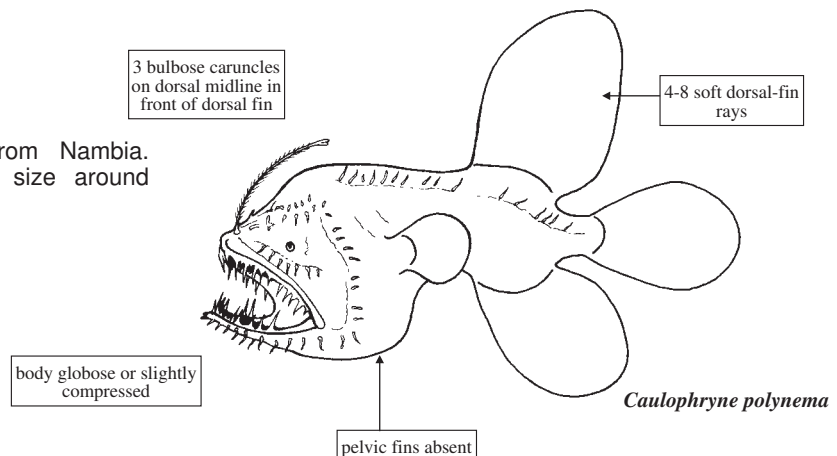
A single species reported from Namibia. Meso- and bathypelagic. Maximum size to around 18 cm total length.

**CERATHIDAE****Seadevils**

Two species in 2 genera reported from Namibia. Meso- and bathypelagic. Maximum size to around 77 cm total length.

**CAULOPHRYNIDAE****Caulophrynids**

One species reported from Namibia. Bathypelagic. Maximum size around 14 cm total length.



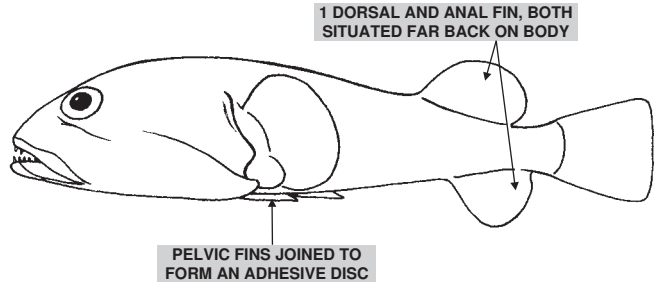
Order **GOBIESOCIFORMES - Clingfishes**

For the species found in Namibia: Pelvic fins joined to form an adhesive disc on ventral surface of body at juncture of head and body; a single dorsal and anal fin, both situated far back on body. Only 1 species, *Chorisochismus dentex*, reported from Namibia; not included in the "Guide to Species."

GOBIESOCIDAE

Clingfishes

Thus far, only a few specimens collected in Namibia. Shallow water. To 30 cm total length.



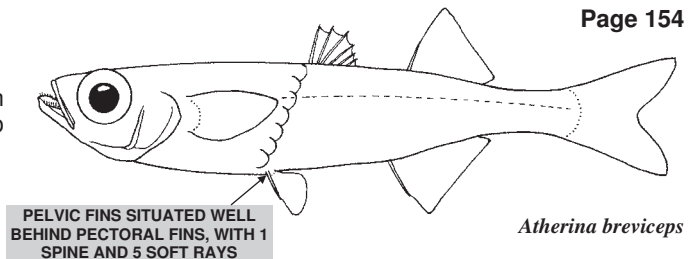
Order **ATHERINIFORMES - Silversides and allies**

For those families found in Namibia: Pelvic fins situated well behind pectoral fins, with 1 spine and 5 rays. One species reported from Namibia, included in the "Guide to Species."

ATHERINIDAE

Silversides and allies

One species reported from Namibia. In bays and estuaries. Maximum size to 11 cm total length.



Page 154

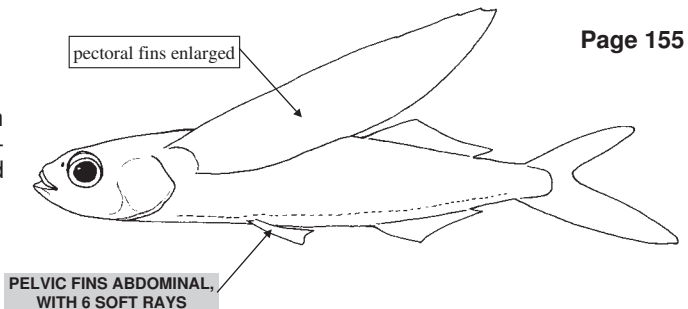
Order **BELONIFORMES - Flyingfishes, Sauries, and allies**

Pelvic fins abdominal, with 6 soft rays. Two families reported from Namibia.

EXOCOETIDAE

Flyingfishes

Two species in 2 genera possibly from Namibia; both included in "Guide to Species." Epipelagic. To 25 cm standard length.

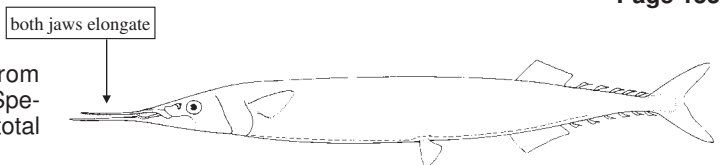


Page 155

SCOMBERESOCIDAE

Sauries

Two species in 2 genera possibly from Namibia; both included in "Guide to Species." Epipelagic. To around 50 cm total length.



Page 155

Order **LAMPRIFORMES - Opahs and allies**

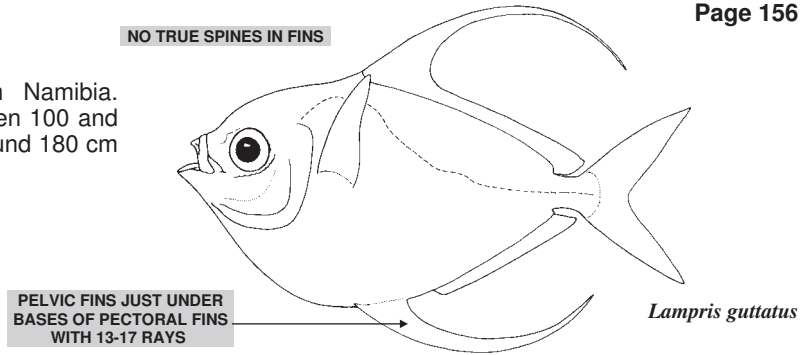
A diverse group of often strange-looking fishes. In Namibia members differentiated by: no true spines in fins; pelvic fins just under bases of pectoral fins with 13 to 17 rays, or pelvic fins under or in front of pectoral-fin bases with a single ray followed by 3 rudimentary rays, or anal fin absent. At least 4 families possibly in Namibia.

LAMPRIDAE

Page 156

Opahs

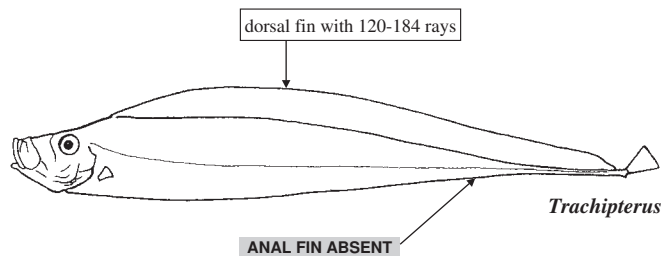
One species reported from Namibia. Mesopelagic in depths between 100 and 400 m. Maximum size to around 180 cm total length.

**TRACHIPTERIDAE**

Page 156

Ribbonfishes

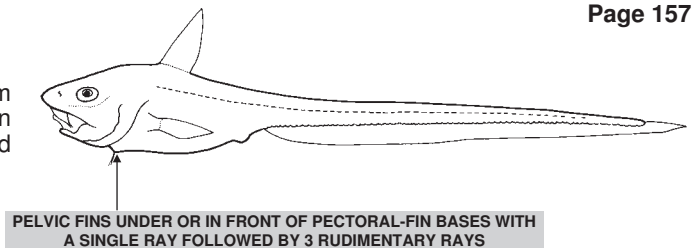
Two species in 2 genera from Namibia. Mesopelagic. Maximum size to 213 cm total length.

**ATELEOPODIDAE**

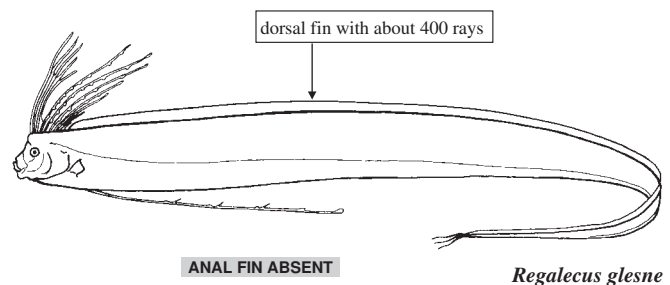
Page 157

Ateleopodids

Two species in 2 genera reported from Namibia. Demersal in depths between 200 and 700 m. Maximum size to around 2 m total length.

**REGALECIDAE****Oarfishes**

At least 1 species found in Namibia, although rare and not included in the "Guide to Species." Mesopelagic. Maximum size to 8 m total length.



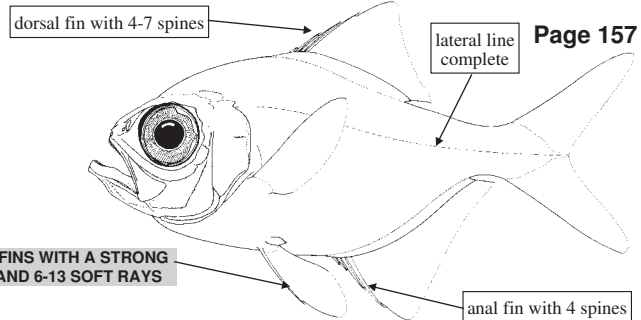
Order **BERYCIFORMES - Alfonsinos and allies**

For these families found in Namibia: pelvic fins with only 5 soft rays or, a strong spine and 6 to 13 soft rays. At least 5 families expected in Namibia; 2 families contain species that are typically very deep-water inhabitants and these families are not included in the "Guide to Species."

BERYCIDAE

Alfonsinos

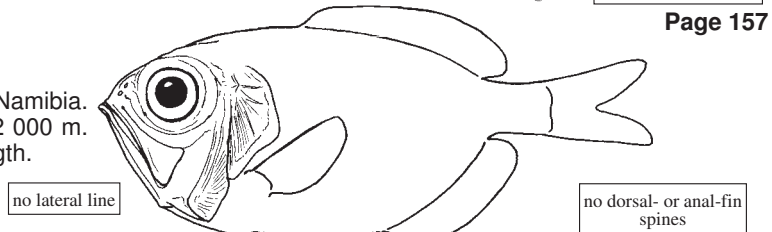
One species, considered one of the "redfishes" and commonly caught in trawls in Namibia. Demersal in depths between 200 and 700 m. Maximum size to 45 cm total length.



DIRETMIDAE

Spinyfins

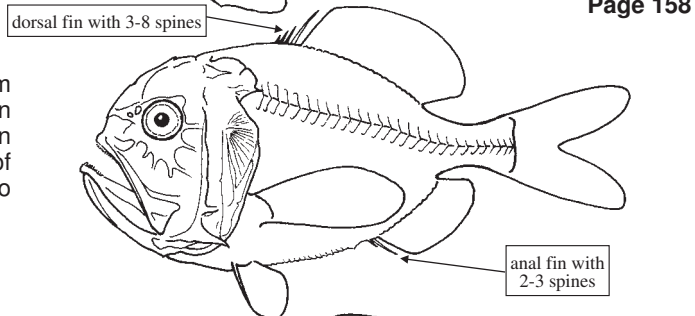
A single species expected in Namibia. Pelagic from shallow depths to 2 000 m. Maximum size to 40 cm total length.



TRACHICHTHYIDAE

Slimeheads

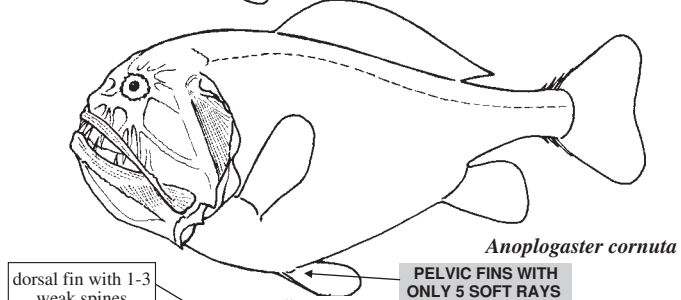
Five species in 2 genera reported from Namibia. The orange roughly included in this family is now an important fishery in Namibia. Benthopelagic from depths of 50 to 1 000 m. Maximum size up to around 70 cm total length.



ANOPLOGASTERIDAE

Fangtooth

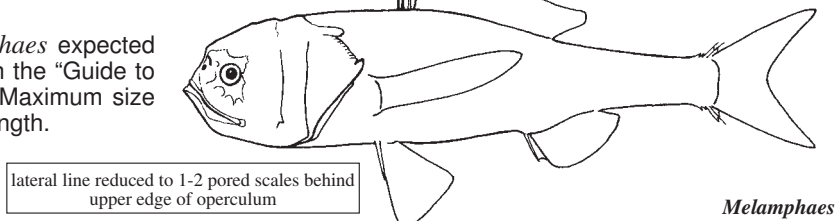
One species expected in Namibia, not included in the "Guide to Species." Mesoto bathypelagic in depths between 50 and 2 000 m. Maximum size to about 15 cm standard length.



MELAMPHAIDAE

Bigscales

Three species of *Melamphaes* expected in Namibia, not included in the "Guide to Species." Bathypelagic. Maximum size less than 5 cm standard length.



Order **CETOMIMIFORMES - Whalefishes**

Body whale-shaped; very large mouth; no fin spines; anal and dorsal fin opposite each other and far back on body; pelvic fins absent or abdominal (in species reported from Namibia, pelvic fins are abdominal, with 6 rays). One species reported from Namibia, rare, not included in the "Guide to Species."

BARBOURISIIDAE

(plate IV, 25)

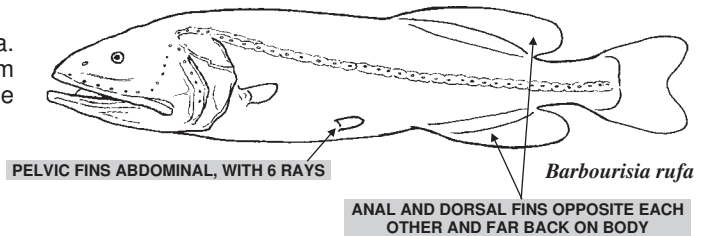
VERY LARGE MOUTH

NO FIN SPINES

BODY WHALE-SHAPED

Velvet whalefishes

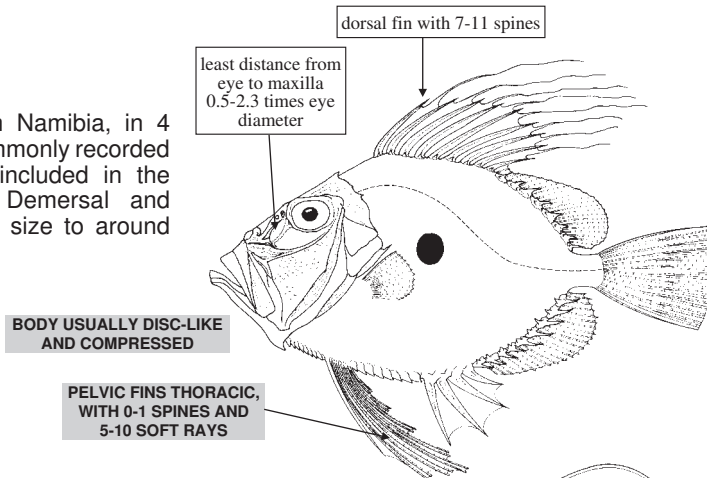
One species reported from Namibia. Meso-, bathy- and benthopelagic from depths of 300 to 2 000 m. Maximum size to around 33 cm total length.

Order **ZEIFORMES - Dories and allies**

Body usually disc-like and compressed; pelvic fins thoracic, with 0 to 1 spines and 5 to 10 soft rays. Four families found in Namibia.

ZEIDAE**Dories**

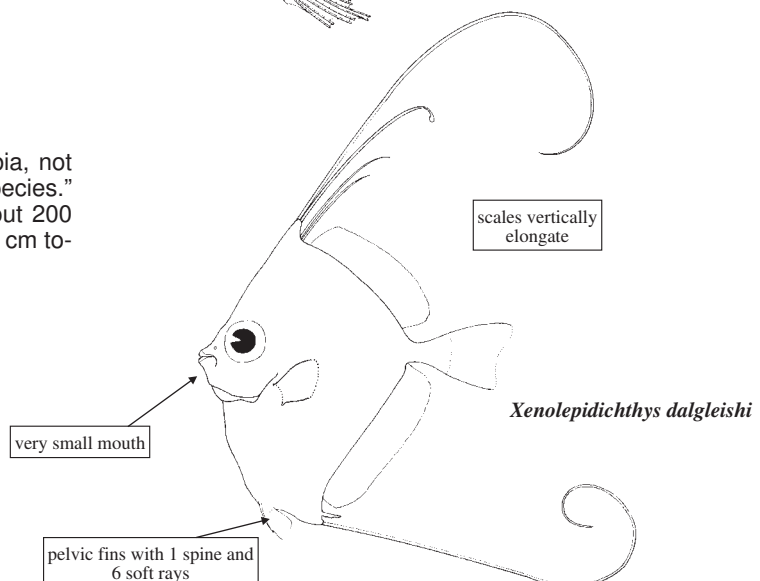
Possibly 5 species from Namibia, in 4 genera; 2 species not commonly recorded from Namibia and not included in the "Guide to Species." Demersal and mesopelagic. Maximum size to around 90 cm total length.



Page 159

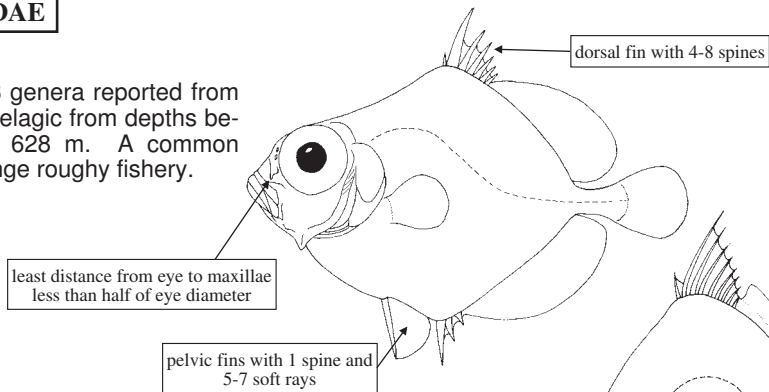
GRAMMICOLEPIDIDAE**Diamond dories**

One species reported from Namibia, not included in the "Guide to Species." Benthopelagic from depths of about 200 to 400 m. Maximum size about 15 cm total length.

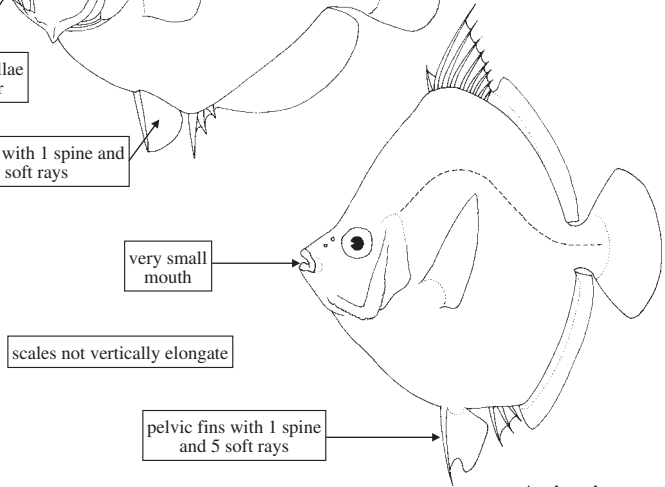


OREOSOMATIDAE**Oreos**

Three species in 3 genera reported from Namibia. Benthopelagic from depths between 400 and 1 628 m. A common bycatch in the orange roughy fishery.

**CAPROIDAE****Boarfishes**

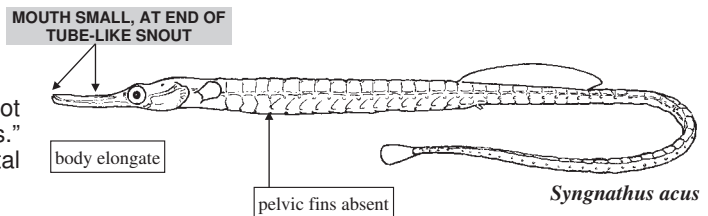
One species possibly from Namibia, not included in the "Guide to Species." This family sometimes included under the order Perciformes. Demersal in depths from 50 to 400 m. Size to about 30 cm total length.

*Antonia capros***Order SYNGNATHIFORMES - Pipefishes and allies**

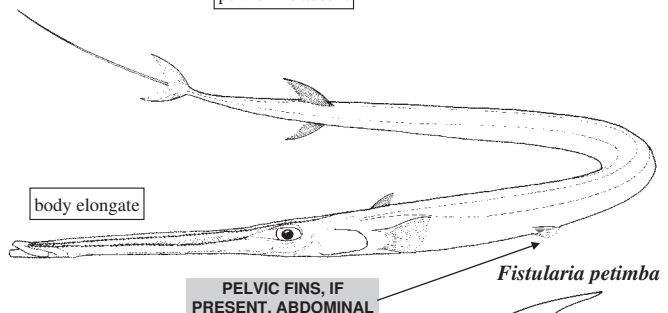
Mouth small, at end of tube-like snout; pelvic fins, if present, abdominal. Three families in Namibia.

SYNGNATHIDAE**Pipefishes**

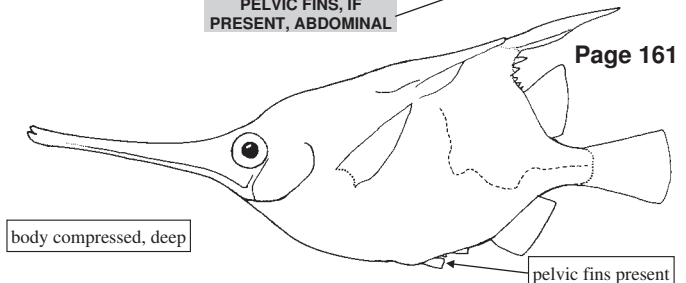
One species reported from Namibia; not included in the "Guide to Species." Neritic. Maximum size about 30 cm total length.

*Syngnathus acus***FISTULARIIDAE****Cornetfishes**

One species reported from Namibia; not included in the "Guide to Species." Neritic. Maximum size to 1.5 m.

**MACRORAMPHOSIDAE****Snipefishes**

Two species in 2 genera possibly from Namibia. Demersal. Maximum size to around 30 cm total length.



Order **SCORPAENIFORMES - Scorpionfishes**

Pelvic fins with 1 spine and 2 to 5 soft rays; a bony ridge across cheek, firmly attached to preopercle; head usually spiny, sometimes with bony plates. Six families found in Namibia.

CONGIOPODIDAE**Horsefishes**

Two species reported from Namibia. Demersal. Maximum size to around 76 cm total length.

HEAD USUALLY SPINY, SOMETIMES WITH BONY PLATES

a single nostril on each side

A BONY RIDGE ACROSS CHEEK, FIRMLY ATTACHED TO PREOPERCLE

PELVIC FINS WITH 1 SPINE AND 2-5 SOFT RAYS

Page 161

SCORPAENIDAE**Scorpionfishes**

Seven species in as many genera reported from Namibia. Demersal in depths from 100 to over 1 000 m. Maximum size to around 50 cm total length.

2 nostrils on each side

anal-fin spines present

Page 162

TRIGLIDAE**Searobins or gurnards**

Possibly 4 species in 2 genera from Namibia. Demersal from shallow depths to 400 m. Maximum size around 75 cm total length.

head but not body encased in expanded bony plates

Page 163

PERISTEDIIDAE**Armoured searobins**

One species reported from Namibia; not included in the "Guide to Species." Demersal in depths from 70 to 600 m. Maximum size 25 cm total length.

head and body encased in expanded bony plates

**PSYCHROLUTIDAE**

(plate IV, 26)

Fatheads

One species reported from Namibia; not included in the "Guide to Species." Demersal in depths from 318 to 600 m. Maximum size around 27 cm total length.

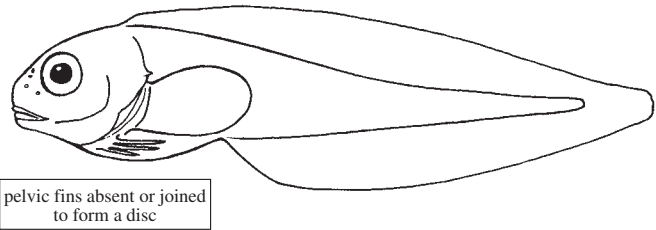
2 nostrils on each side

no anal-fin spines

*Peristedium cataphractum**Ebinania costaecanarie*

LIPARIDIDAE**Snailfishes**

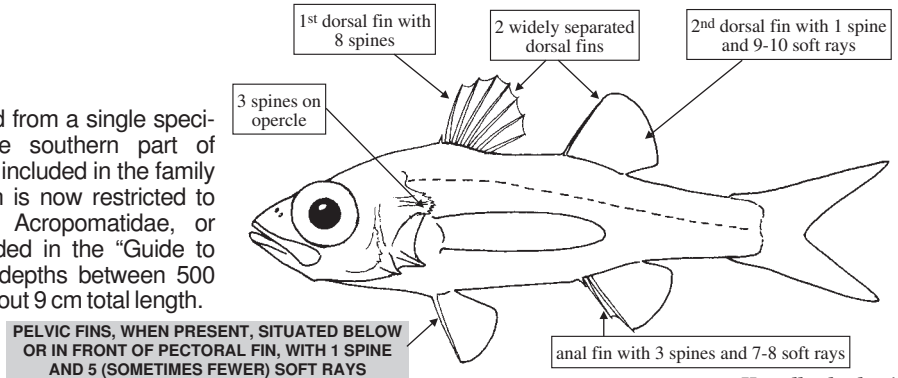
Possibly 3 species from Namibia; none included in the "Guide to Species." Demersal from depths between 300 and over 1 100 m. Maximum size to around 50 cm standard length.

**Order PERCIFORMES - Perch-like Fishes**

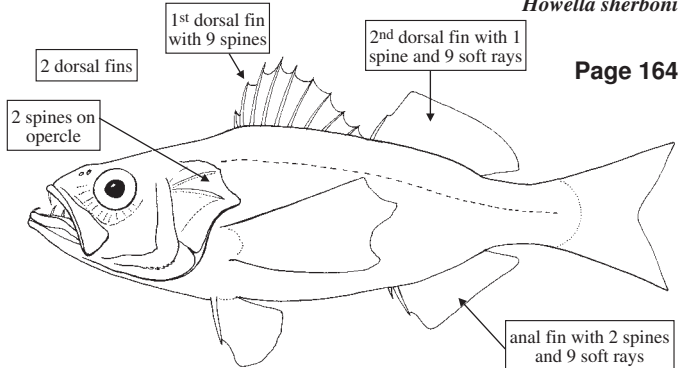
Pelvic fins, when present, situated below or in front of pectoral fin, with 1 spine and 5 (sometimes fewer) rays. At least 44 families reported from Namibia.

HOWELLIDAE**Howellas**

One species, reported from a single specimen in the extreme southern part of Namibia. Sometimes included in the family Percichthyidae (which is now restricted to freshwater species), Acropomatidae, or Moronidae; not included in the "Guide to Species." Found in depths between 500 and 900 m. Size to about 9 cm total length.

*Howella sherboni***ACROPOMATIDAE****Lanternbellies**

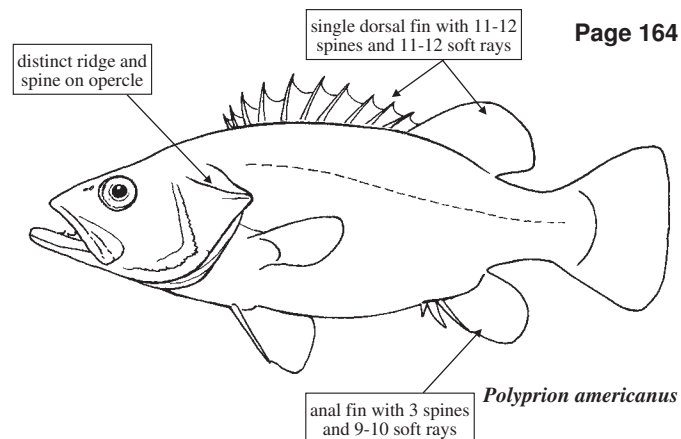
A single species reported from Namibia. Bathypelagic from depths between 50 and 450 m. To about 16 cm total length.

*Synagrops microlepis*

Page 164

POLYPRIONIDAE**Wreckfishes**

A single species known to occur in Namibia; sometimes this species is included in the family Serranidae or Acropomatidae. Usually demersal at depths between 40 and 350 m. Size to 2 m.

*Polyprion americanus*

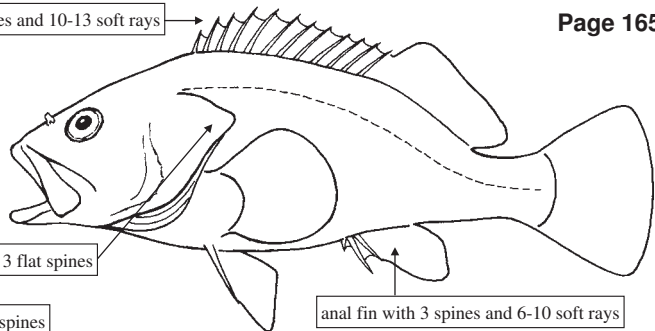
Page 164

SERRANIDAE

single dorsal fin with 7-12 spines and 10-13 soft rays

Page 165**Groupers and seabasses**

Possibly 4 species in as many genera occurring in Namibia. Demersal from shallow depths to 300 m. Maximum size to 1.2 m total length.

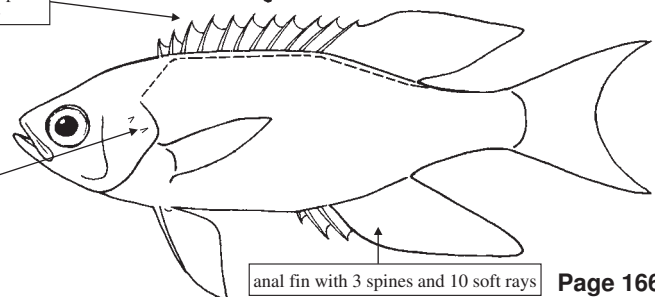
**CALLANTHIDAE****Goldies**

A single, apparently rare, species in Namibia; not included in the "Guide to Species." Demersal. To 25 cm total length.

single dorsal fin with 11 spines and 10-11 soft rays

opercle with 1-2 spines

anal fin with 3 spines and 10 soft rays

Page 166**EPIGONIDAE****Deepwater cardinalfishes**

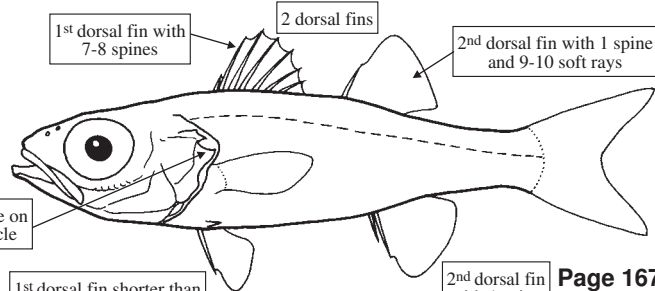
Four species reported from Namibia and another also possibly occurring there. Demersal and benthopelagic in depths between 75 and 1 200 m. Maximum size to about 60 cm total length.

1st dorsal fin with 7-8 spines

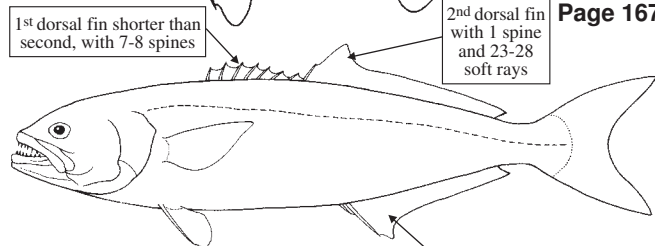
2 dorsal fins

2nd dorsal fin with 1 spine and 9-10 soft rays

1 spine on opercle

**POMATOMIDAE****Bluefish**

One species worldwide, also reported from Namibia. Pelagic in depths between 2 and 200 m. Size to 1.1 m total length.

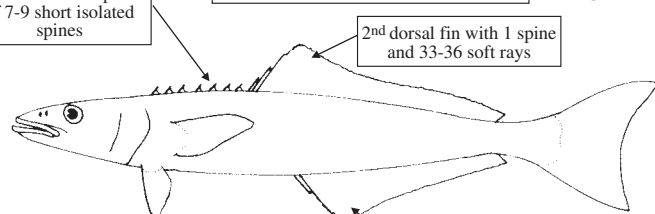
**Page 167****RACHYCENTRIDAE****Cobias**

One species worldwide, also from Namibia. Pelagic. Maximum size to 2 m.

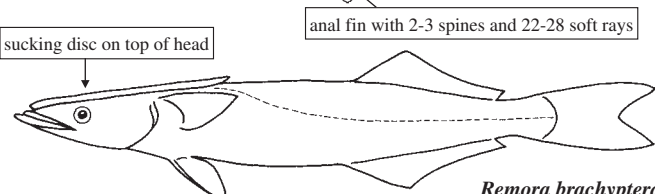
1st dorsal fin composed of 7-9 short isolated spines

anal fin with 2 spines and 23-28 soft rays

2nd dorsal fin with 1 spine and 33-36 soft rays

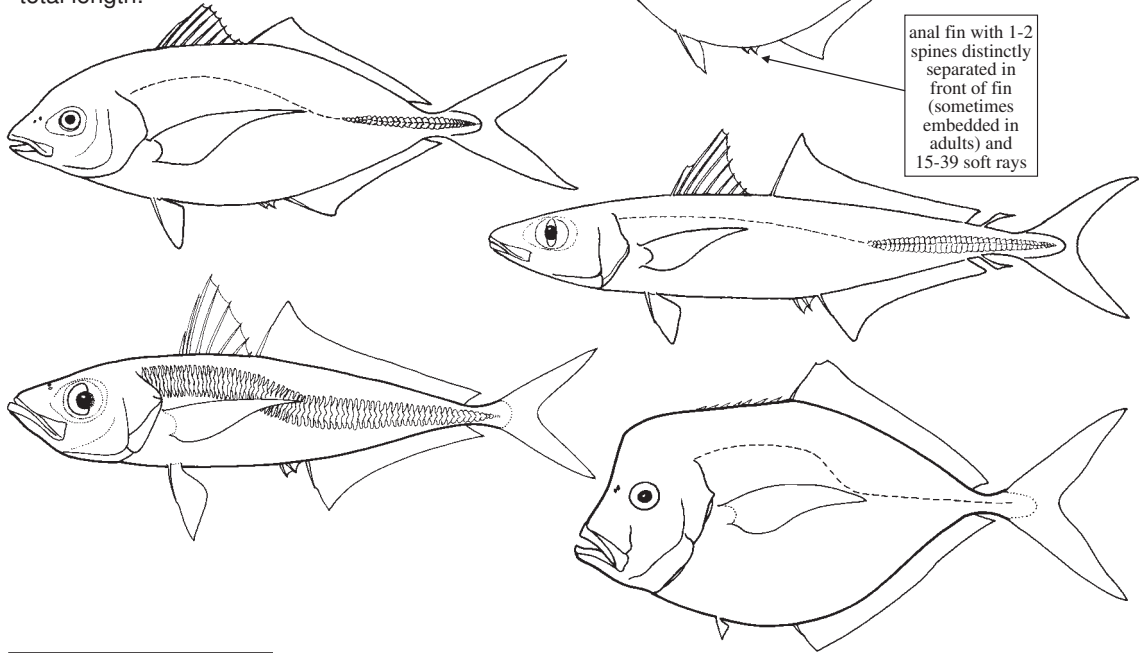
**Page 167****ECHENEIDAE****Remoras**

Typically warm water, at least 1 species, *Remora brachyptera* occurs in Namibia; not included in "Guide to Species." Found attached to larger bony fishes, sharks, marine mammals, and turtles. Maximum size to about 60 cm total length.

*Remora brachyptera*

CARANGIDAE**Horse mackerels, scads, moonfish, jacks, and amberjacks**

Possibly 11 species and 8 genera represented in Namibia, some not included in "Guide to Species." Pelagic and benthopelagic. Largest species to 1.8 m total length.

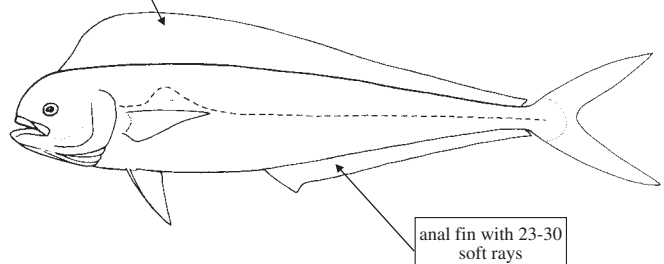


Page 167

CORYPHAENIDAE**Dolphinfish**

Two species may occur in Namibia. Pelagic. Maximum size to around 2 m.

single dorsal fin with
52-67 soft rays

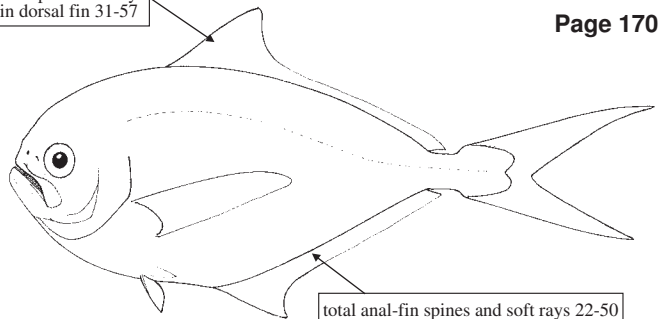


Page 169

BRAMIDAE**Pomfrets**

Possibly 4 species in Namibia, occurrence of 1 species not confirmed and not included in the "Guide to Species." Pelagic to mesopelagic from shallow depths to 400 m. Maximum size to around 1 m total length.

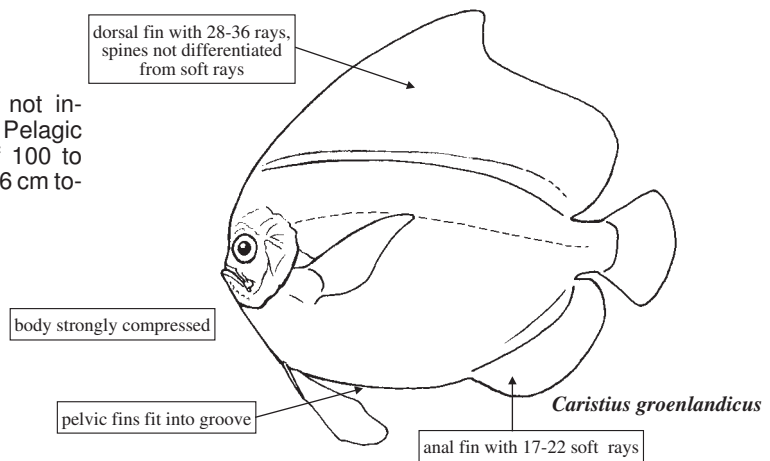
total spines and rays
in dorsal fin 31-57



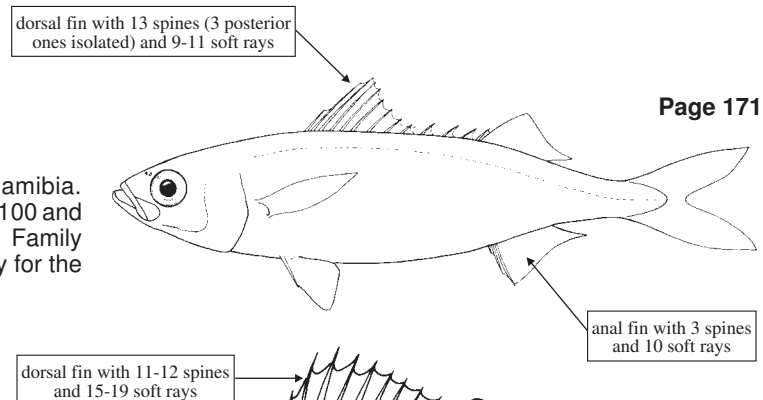
Page 170

CARISTHIDAE**Manefishes**

One species found in Namibia, not included in the "Guide to Species." Pelagic and mesopelagic from depths of 100 to 200 m. Maximum size to around 26 cm total length.

**EMMELICHTHYIDAE****Rovers**

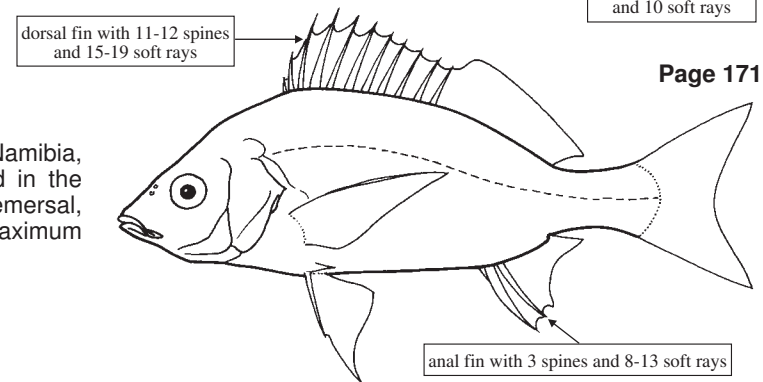
One species is confirmed in Namibia. Benthopelagic between depths of 100 and 200 m. Size to 50 cm total length. Family characteristics given here are only for the species found in Namibia.



Page 171

HAEMULIDAE**Grunts**

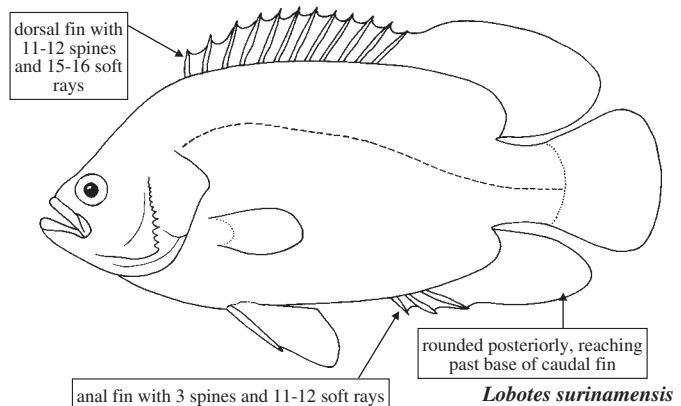
Three species in 2 genera from Namibia, 2 species rare and not included in the "Guide to Species." Neritic and demersal, from shallow depths to 100 m. Maximum size to 60 cm total length.



Page 171

LOBOTIDAE**Tripletails**

One species of this family occurring in the region but not yet confirmed from Namibia and therefore not included in the "Guide to Species." Neritic. To 1 m total length.

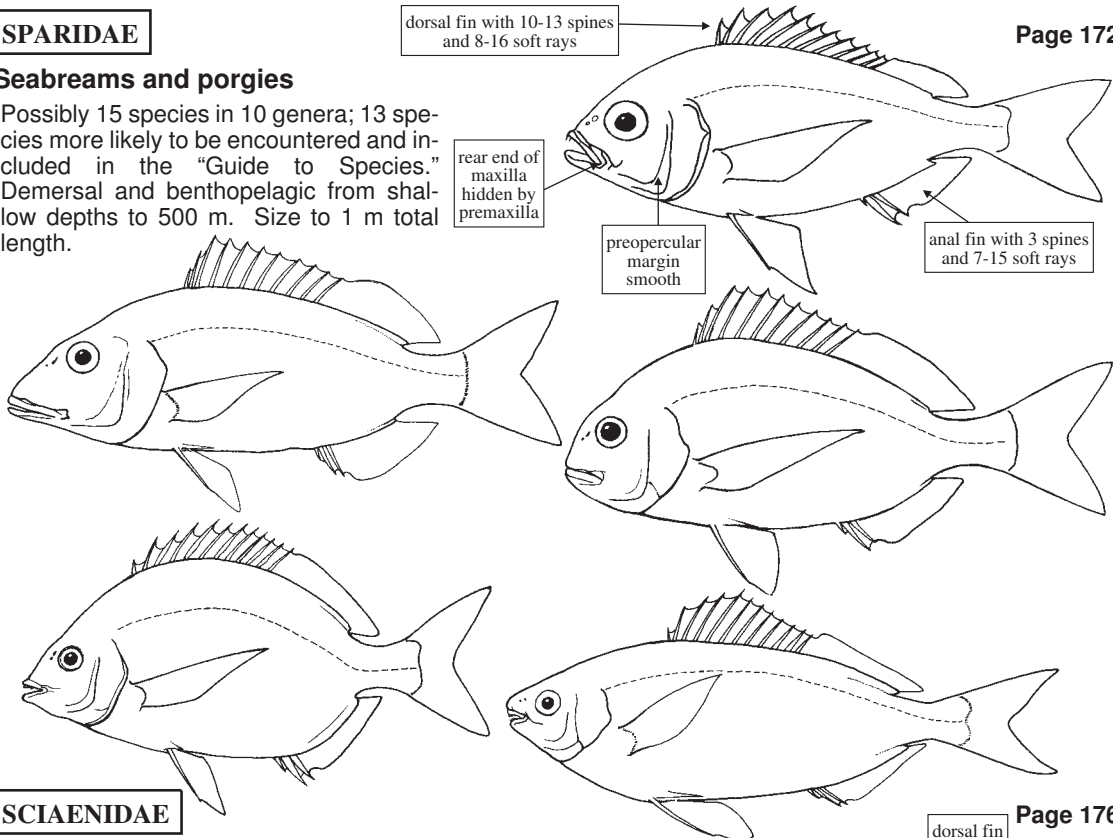


SPARIDAE

Page 172

Seabreams and porgies

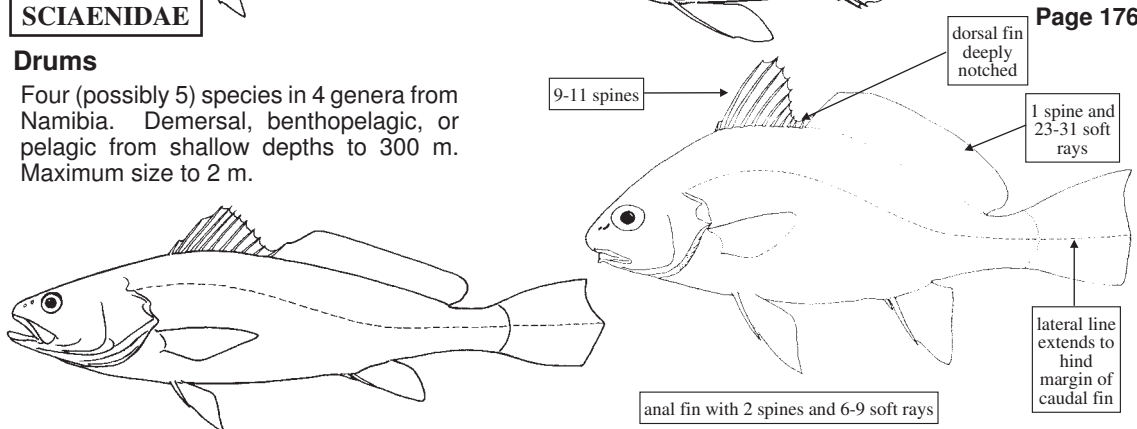
Possibly 15 species in 10 genera; 13 species more likely to be encountered and included in the "Guide to Species." Demersal and benthopelagic from shallow depths to 500 m. Size to 1 m total length.

**SCIAENIDAE**

Page 176

Drums

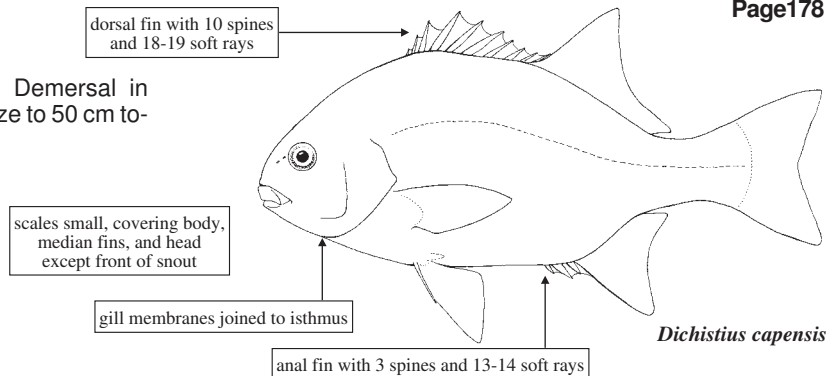
Four (possibly 5) species in 4 genera from Namibia. Demersal, benthopelagic, or pelagic from shallow depths to 300 m. Maximum size to 2 m.

**DICHISTIIDAE**

Page 178

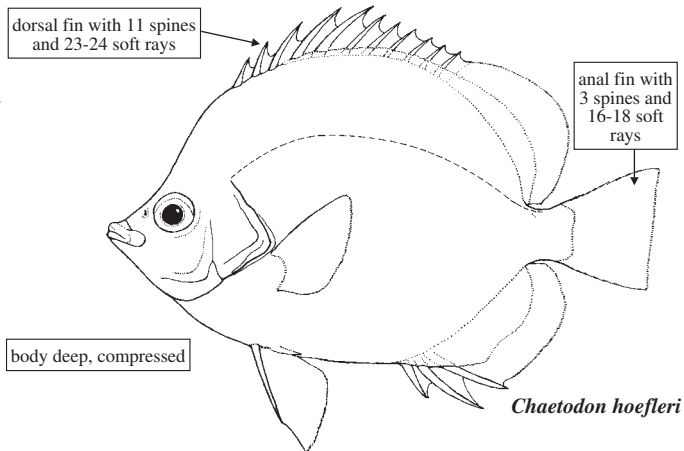
Galjoens

One species in Namibia. Demersal in shallow water. Maximum size to 50 cm total length.



CHAETODONTIDAE**Butterflyfishes**

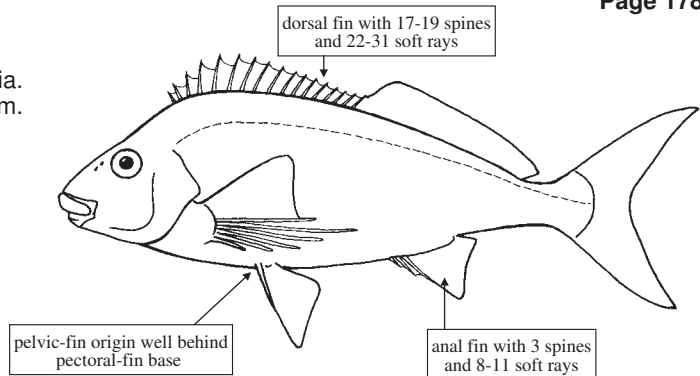
One species in southern Angola and may turn up in Namibia; not included in "Guide to Species." Associated with shallow, hard substrate. Maximum size to 20 cm total length.



Page 178

CHEILODACTYLIDAE**Fingerfins**

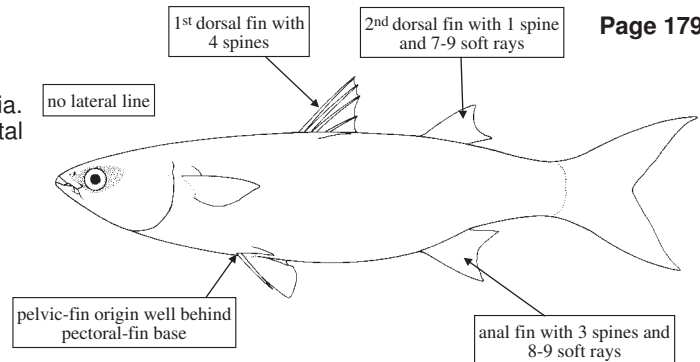
Three species reported from Namibia. Demersal from shallow depths to 240 m. Maximum size to 1 m total length.



Page 179

MUGILIDAE**Mulletts**

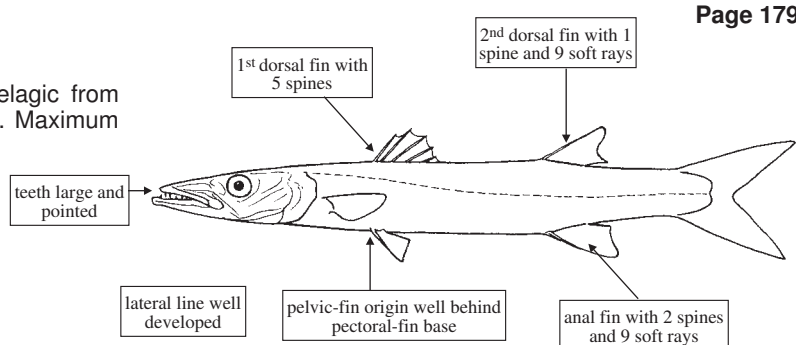
Possibly 3 species in 2 genera in Namibia. Neritic. Maximum size to 120 cm total length.



Page 179

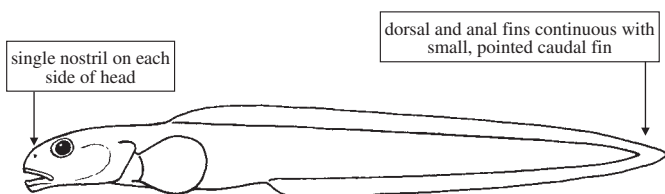
SPHYRAENIDAE**Barracudas**

One species in Namibia. Pelagic from shallow depths to around 75 m. Maximum size to over 2 m total length.

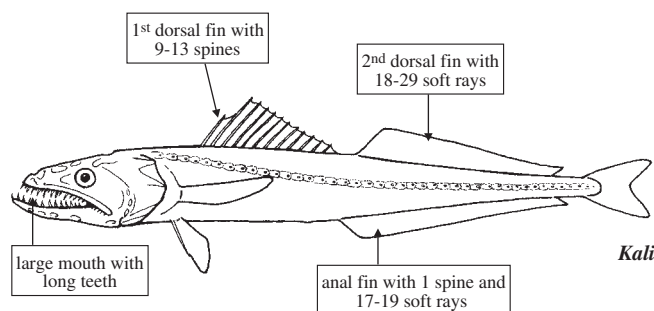


ZOARCIDAE**Eelpouts**

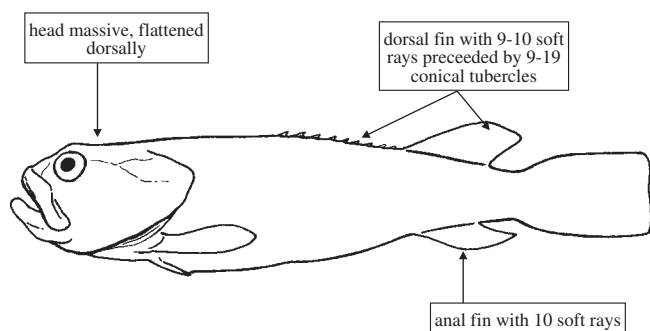
One species in Namibia, not included in the "Guide to Species"; sometimes placed in a separate order, the Zoarciformes. Demersal in depths between 630 and 1 920 m. Maximum size to 45 cm total length.

*Lycodes atlanticus***CHIASMODONTIDAE****Swallowers**

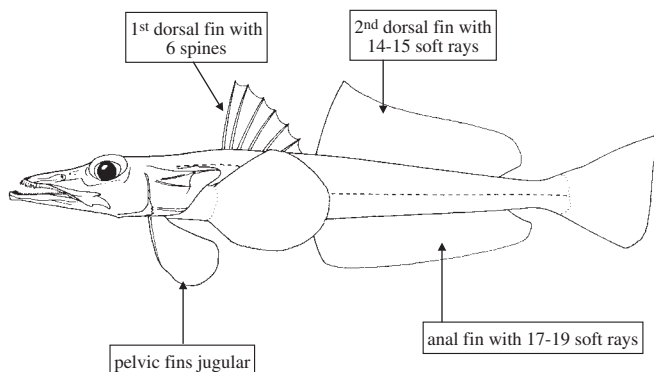
Three species possibly from Namibia, none included in "Guide to Species." Bathypelagic in depths over 1 500 m. Maximum size to about 26 cm total length.

*Kali***URANOSCOPIDAE****Stargazers**

Two specimens of 1 species reported from extreme southern Namibia; not included in "Guide to Species." Demersal. Maximum size to 33 cm total length.

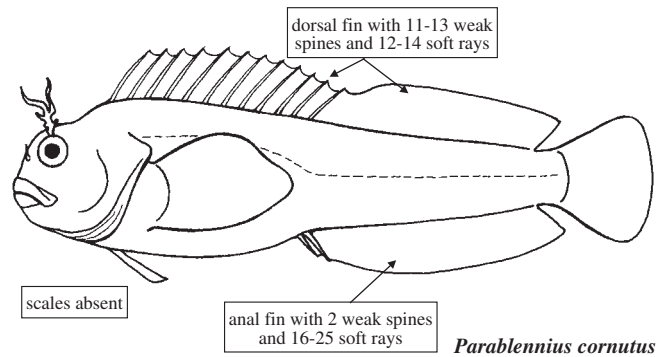
*Pleuroscopus pseudodorsalis***PERCOPHIDAE****Duckbills**

A single species reported from only a few specimens in the extreme northern waters of Namibia; not included in the "Guide to Species." Demersal in depths between 50 and 400 m. Maximum size to 23 cm total length.

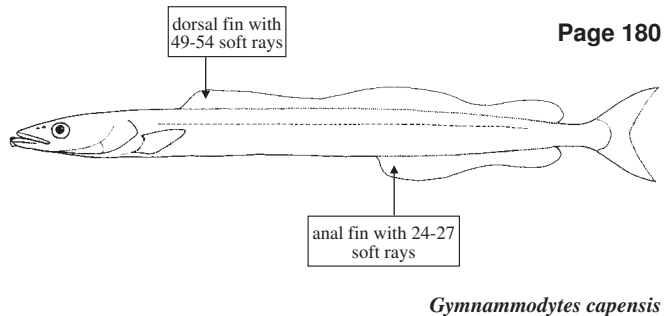
*Bembrops heterurus*

BLENNIIDAE**Blennies**

Three species in 2 genera reported from Namibia; none included in "Guide to Species." Demersal from intertidal zone to a depth of 25 m. Maximum size to about 15 cm standard length.

**AMMODYTIDAE****Sandlances**

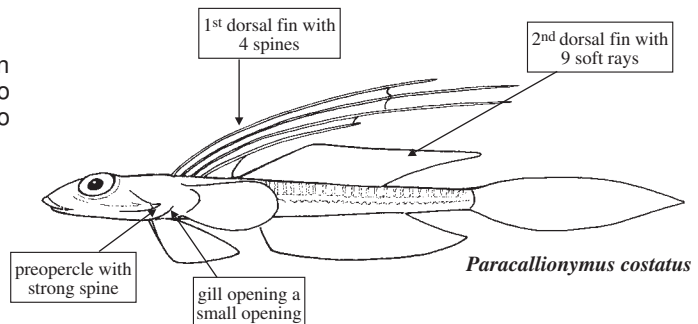
One species reported from Namibia. Demersal in shallow sandy areas. Maximum size to 17 cm total length.



Page 180

CALLIONYMIDAE**Dragonets**

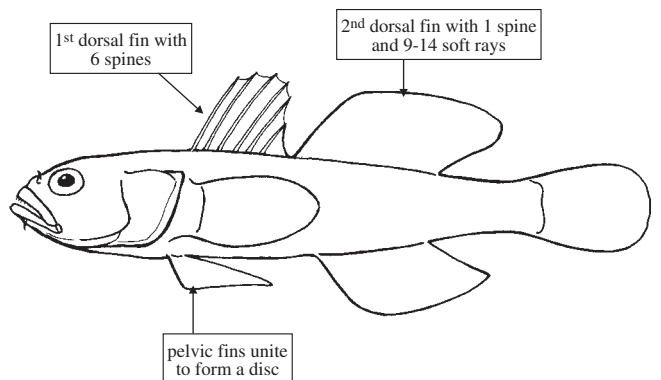
One species reported from Namibia, often caught in trawls; included in the "Guide to Species." Demersal. Maximum size to 15 cm total length.



Page 180

GOBIIDAE**Gobies**

Five species reported from Namibia, only 1 of which is commonly encountered in fisheries and included in the "Guide to Species." Demersal in shallow depths to 340 m. Maximum size to 17 cm total length.

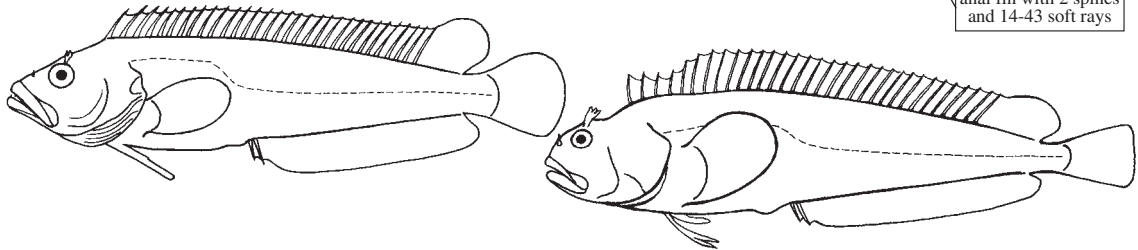


Page 180

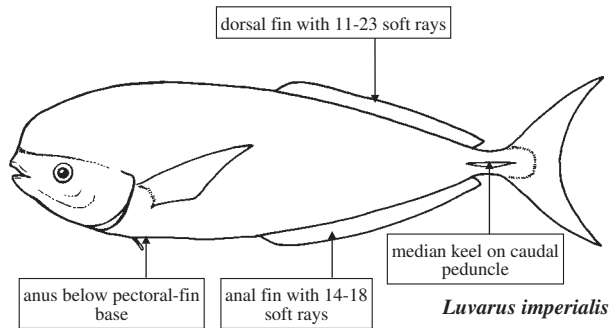


CLINIDAE**Clinids**

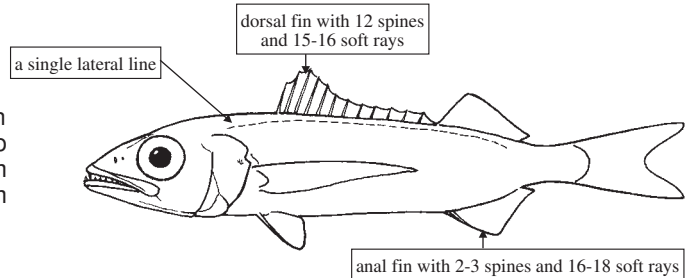
Eleven species in 5 genera reported from Namibia, none included in "Guide to Species." Shallow demersal species. Largest species attain 30 cm total length.

**LUVARIDAE****Louvar**

A single species worldwide, also expected from Namibia; not included in the "Guide to Species." Epipelagic. Size to 1.9 m total length.

**SCOMBROLABRACIDAE****Black mackerel**

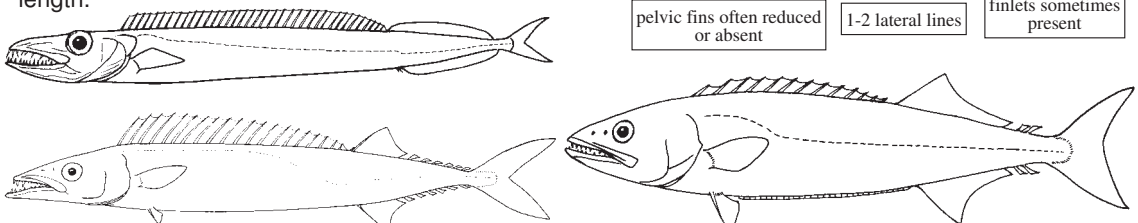
A single species, also may occur in Namibia; not included in the "Guide to Species." Mesopelagic in depths from 100 to 1 000 m. Maximum size to 30 cm total length.



Scombrolabrax heterolepis

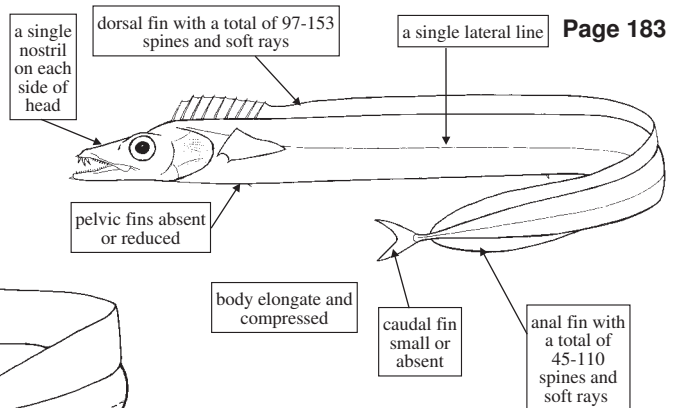
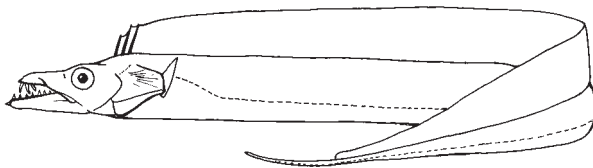
GEMPYLIDAE**Snake mackerels**

Possibly 10 species in 10 genera may occur in Namibia, 9 included in the "Guide to Species." Epipelagic, mesopelagic and benthopelagic, from shallow depths to over 1 000 m. Maximum size to 2 m total length.

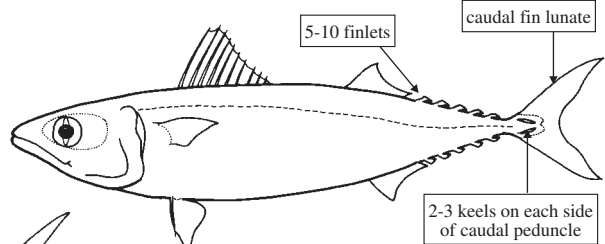
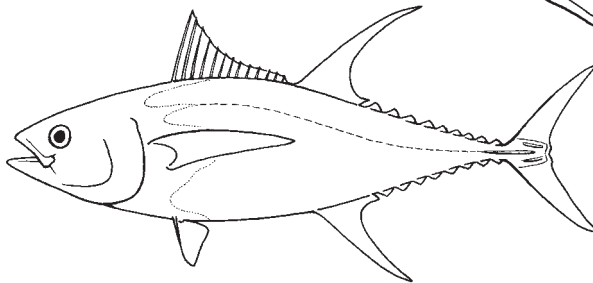


TRICHIURIDAE**Cutlassfishes**

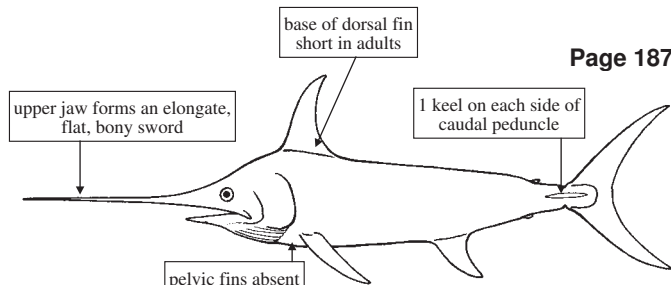
Five species in 4 genera possibly from Namibia. Benthopelagic in shallow depths to 2 000 m. Maximum size to about 2 m standard length.

**Page 183****SCOMBRIDAE****Tunas, mackerels, and bonitos**

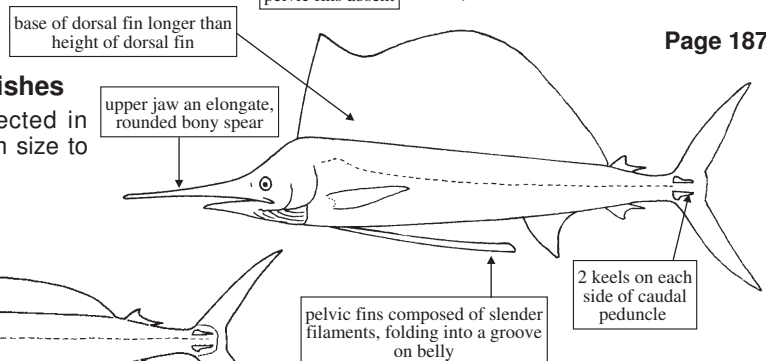
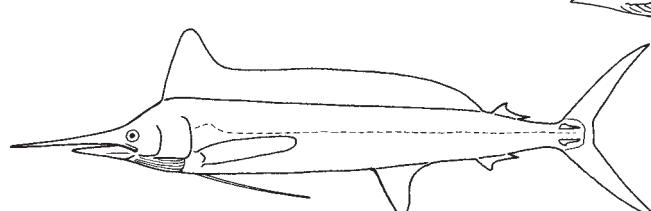
Seven species in 5 genera reported from Namibia. Epipelagic or benthopelagic. Maximum size to 2 m standard length.

**Page 184****XIPHIIDAE****Swordfish**

A single species worldwide, also reported from Namibia. Epipelagic. Maximum size to 4.5 m total length.

**Page 187****ISTIOPHORIDAE****Sailfish, marlins, and spearfishes**

Four species in 3 genera expected in Namibia. Epipelagic. Maximum size to 4 m total length.

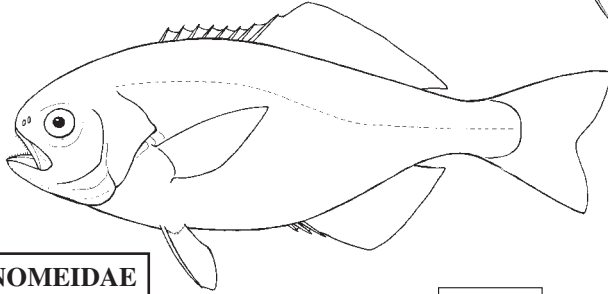
**Page 187**

CENTROLOPHIDAE

Page 188

Ruffs, barrelfish, and blackfishes

Five species in 3 genera from Namibia. Epipelagic, mesopelagic and bentho-pelagic down to a depth of 500 m. Maximum size to 1.2 m.



dorsal fin with a total of 27-65 soft rays

pelvic fins fit into shallow groove

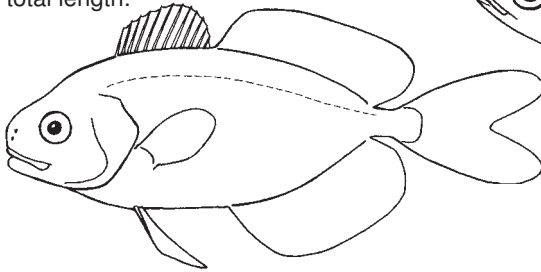
anal fin with 2-3 spines and 15-38 soft rays

NOMEIDAE

Page 190

Driftfishes

Six species in 2 genera likely to be found in Namibia. Epipelagic, mesopelagic, and demersal. Maximum size to around 1 m total length.



1st dorsal fin folds into a groove

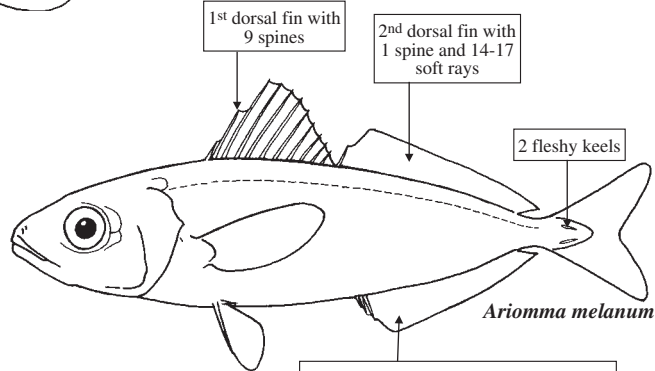
1st dorsal fin with 9-12 spines

2nd dorsal fin with 1 spine and 13-31 soft rays

anal fin with 1-3 spines and 13-31 soft rays

ARIOMMATIDAE**Ariommatids**

Possibly 1 species may be found in Namibia; not included in the "Guide to Species." Benthopelagic from depths between 200 and 600 m. Maximum size to 25 cm total length.



1st dorsal fin with 9 spines

2nd dorsal fin with 1 spine and 14-17 soft rays

2 fleshy keels

Ariomma melanum

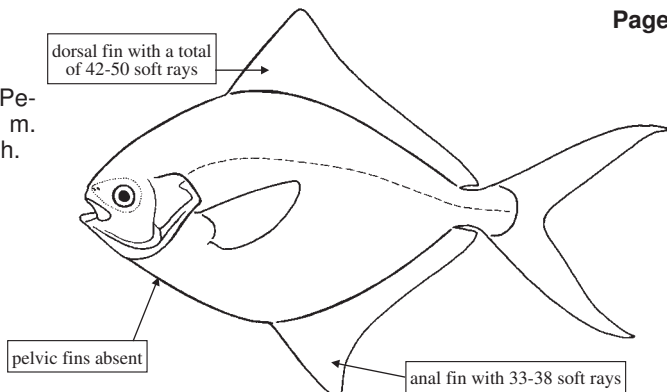
anal fin with 3 spines and 13-31 soft rays

STROMATEIDAE

Page 191

Butterfishes

One species known from Namibia. Pelagic from depths between 10 and 70 m. Maximum size about 50 cm total length.



dorsal fin with a total of 42-50 soft rays

pelvic fins absent

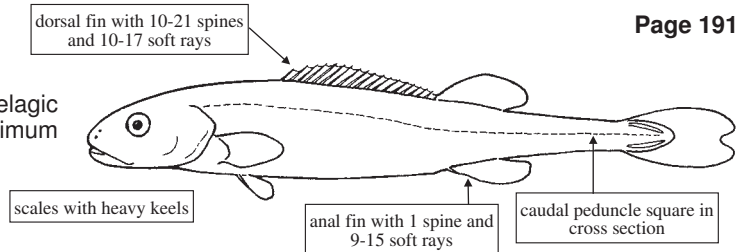
anal fin with 33-38 soft rays

TETRAGONURIDAE

Page 191

Squaretails

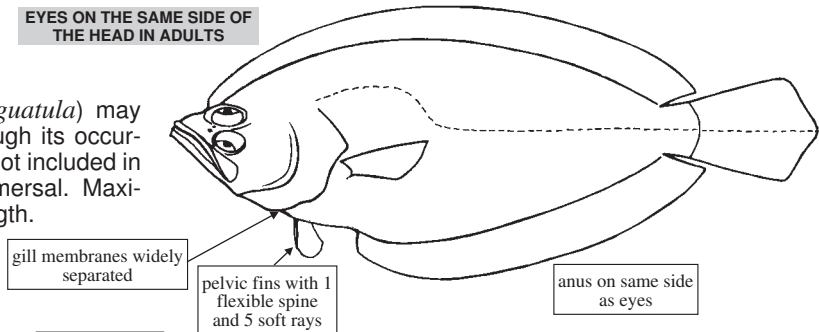
Two species found in Namibia. Pelagic from shallow depths to 800 m. Maximum size about 70 cm total length.

**Order PLEURONECTIFORMES - Flatfish**

In adults, both eyes on the same side of the head. Four families reported from Namibia.

CITHARIDAE**EYES ON THE SAME SIDE OF THE HEAD IN ADULTS****Citharids**

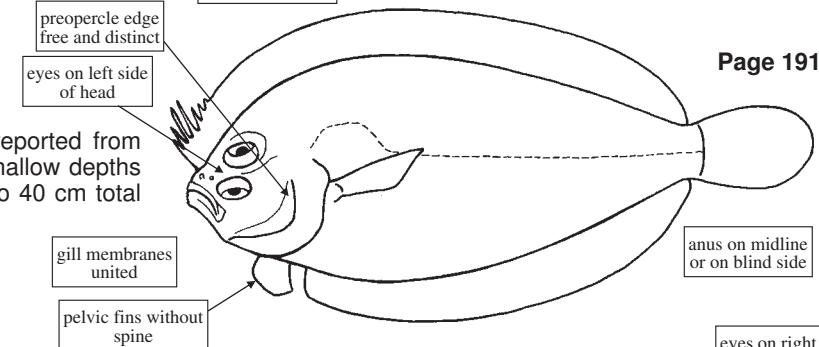
One species (*Citharus linguatula*) may be found in Namibia, although its occurrence is not yet confirmed; not included in the "Guide to Species." Demersal. Maximum size to 25 cm total length.

**BOTHIDAE**

Page 191

Lefteye flounders

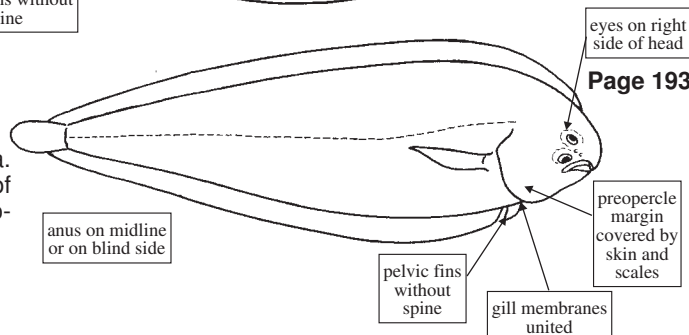
Five species in 4 genera reported from Namibia. Demersal, from shallow depths to 650 m. Maximum size to 40 cm total length.

**SOLEIDAE**

Page 193

Soles

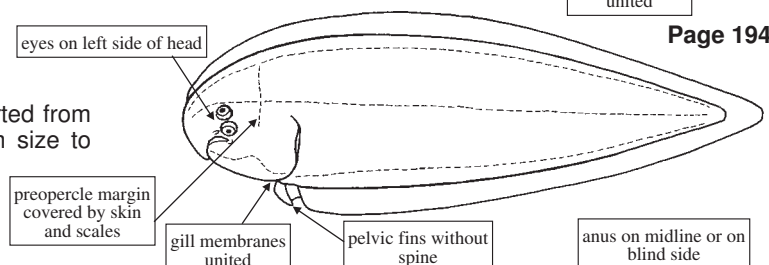
Possibly 6 species in 4 genera in Namibia. Demersal, from near surface to a depth of 460 m. Maximum size to about 75 cm total length.

**CYNOGLOSSIDAE**

Page 194

Tonguefishes

Three species in 2 genera reported from Namibia. Demersal. Maximum size to about 70 cm total length.



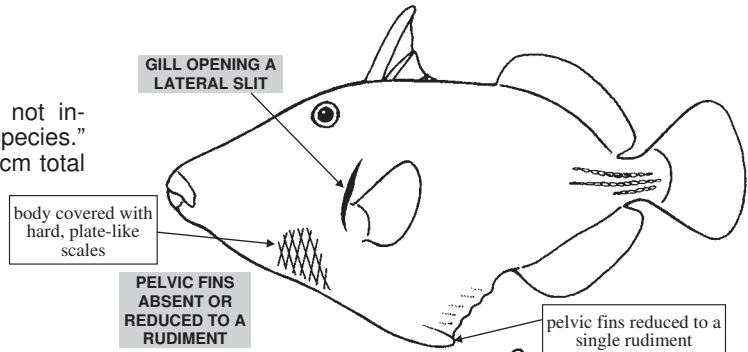
Order TETRAODONTIFORMES - Tetraodontiform Fishes

Pelvic fins absent or reduced to a rudiment; gill opening a lateral slit. Five families reported from Namibia.

BALISTIDAE

Triggerfishes

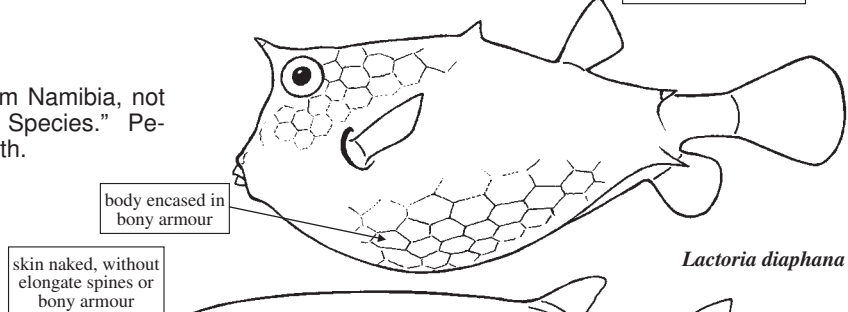
Possibly 1 species in Namibia, not included in the "Guide to Species." Demersal. Maximum size to 30 cm total length.



OSTRACIIDAE

Cowfishes

One species reported from Namibia, not included in the "Guide to Species." Pelagic. To 25 cm total length.

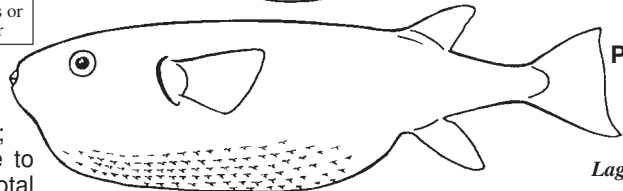


Lactoria diaphana

TETRAODONTIDAE

Puffers

Three species possibly from Namibia; 1 species not included in the "Guide to Species." Pelagic. To 100 cm total length.



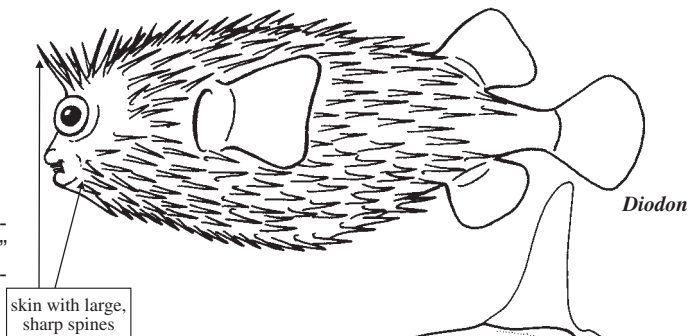
Page 195

Lagocephalus

DIODONTIDAE

Porcupinefishes or spiny puffers

Possibly 3 species in Namibia, none included in the "Guide to Species." Epipelagic and neritic. To about 60 cm total length.

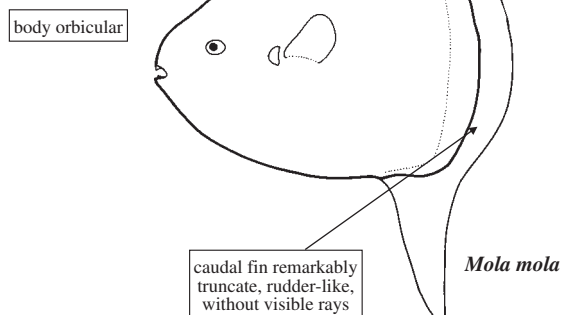


Diodon

MOLIDAE

Molas or ocean sunfishes

At least 1 species known from Namibia. Epipelagic and oceanic. Attains 3 m total length.



Mola mola

Pterothrissus belloci Cadenat, 1937 (plate IV, 27)

ALBULIDAE

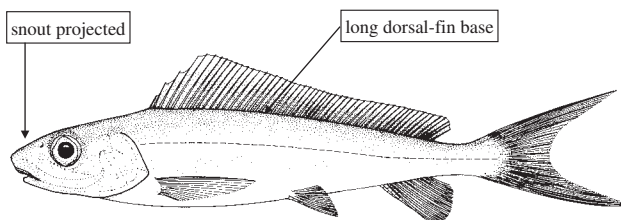
FAO names: **En** - Longfin bonefish; **Fr** - Banane gisu; **Sp** - Macabí badejo.

Local names: Langvin-beenvis (Ak); Großflossen-Grätenfisch (Gr).

Size: To 35 cm.

Fisheries: Commonly caught incidentally in bottom and pelagic trawls.

Habitat and biology: Found between depths of 50 and 500 m on muddy bottoms. The elongate larvae of this species (leptocephalus larvae) found in Walvis Bay indicate a possible breeding area, maybe in deeper waters.



Notacanthus sexspinis Richardson, 1846

(plate IV, 28)

NOTACANTHIDAE

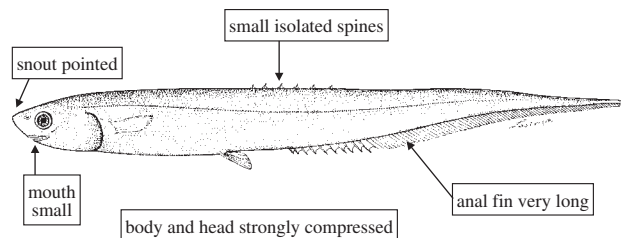
FAO names: **En** - Spiny-back eel; **Fr** - Tapir du Cap; **Sp** - Espinado del Cabo.

Local names:

Size: To 60 cm.

Fisheries: Commonly caught in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: Lives over the bottom from depths of 320 to 1 100 m. Mainly between Walvis Bay and Lüderitz.



Myxostriophis rostellatus (Richardson, 1844)

OPHICHTHIDAE

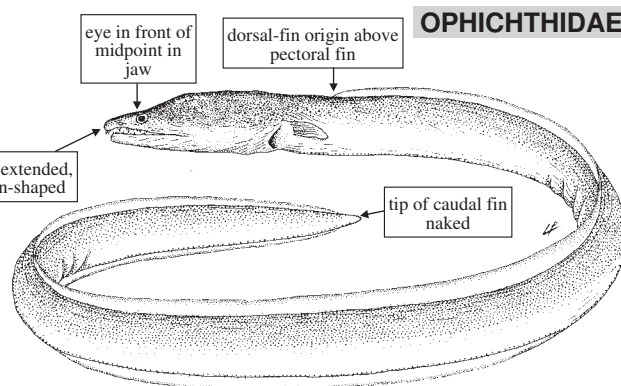
FAO names: **En** - African spoon-nose eel; **Fr** - Serpention gris; **Sp** - Tieso gris.

Local names: West coast snake-eel; Weskus-slangpaling (Ak).

Size: To 140 cm.

Fisheries: Commonly caught by anglers in the Lüderitz lagoon.

Habitat and biology: Demersal in shallow depths down to 40 m.



Ophisurus serpens (Linnaeus, 1766)

OPHICHTHIDAE

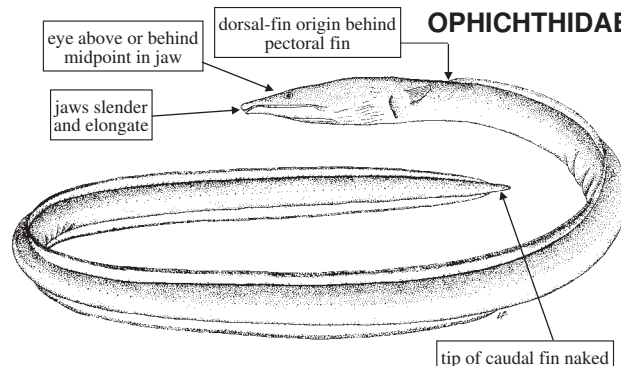
FAO names: **En** - Serpent eel; **Fr** - Serpention à nez long; **Sp** - Tieso trompudo.

Local names: Sand snake-eel; Sandslangetjie (Ak); Mittelmeer-Schlangenaai (Gr).

Size: To 250 cm.

Fisheries: Rarely taken with bottom trawl.

Habitat and biology: Lives buried in the sand, only its head exposed, on the continental shelf and to depths of 300 m.



***Bassanago albescens* (Barnard, 1923)**

(plate IV, 29)

CONGRIDAE

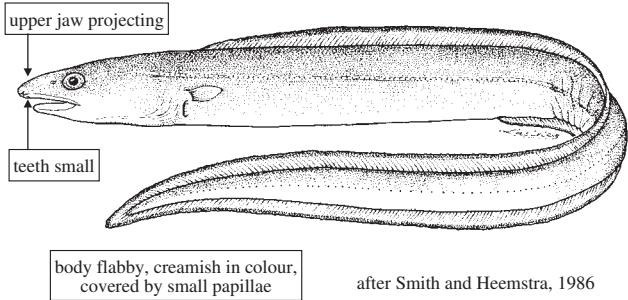
FAO names: **En** - Hairy conger; **Fr** - Congre crin; **Sp** - Congrio crin.

Local names: Harige seepaling (Ak).

Size: To 100 cm.

Fisheries: Caught incidentally in bottom trawls as a bycatch of the deep-water fishery.

Habitat and biology: Benthic.

***Bathyuroconger vicinus* (Vaillant, 1888)**

(plate IV, 30)

CONGRIDAE

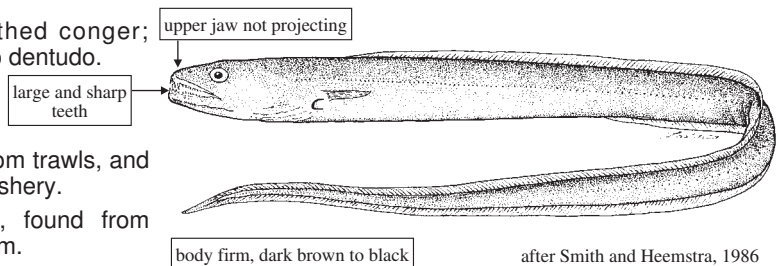
FAO names: **En** - Large-toothed conger; **Fr** - Congre denté; **Sp** - Congrio dentado.

Local names:

Size: To 65 cm.

Fisheries: Rarely caught in bottom trawls, and as a bycatch of the deep-water fishery.

Habitat and biology: Benthic, found from depths of about 120 to over 800 m.

***Etrumeus whiteheadi* Wongratana, 1983**

(plate IV, 32)

WRR CLUPEIDAE

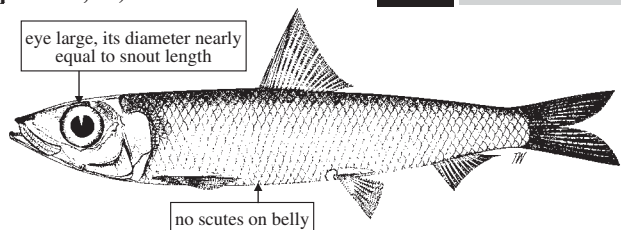
FAO names: **En** - Whitehead's round herring; **Fr** - Sardine de Whitehead; **Sp** - Sardina angoleña.

Local names: Redeye roundherring; Rooi-oog-rondeharing (Ak).

Size: To 20 cm.

Fisheries: Purse seines, utilized for the production of fish meal and fish oil.

Habitat and biology: Pelagic, mainly inshore, found to a depth of about 200 m. Until recently confused with *E. teres* which does not occur in the Eastern Atlantic. Often forms shoals together with pilchard and anchovy particularly as juveniles. Feeds on larger types of zooplankton.

***Sardinella aurita* Valenciennes, 1847**

(plate IV, 31)

SAA CLUPEIDAE

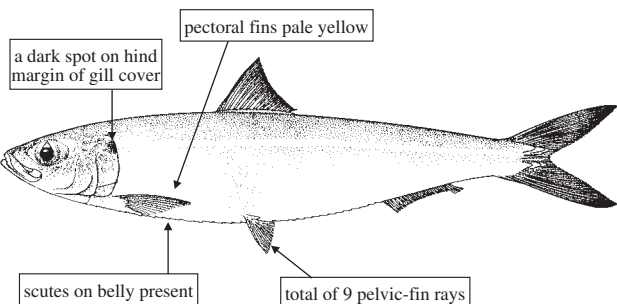
FAO names: **En** - Round sardinella; **Fr** - Allache; **Sp** - Allacha.

Local names: Goue sardinelle (Ak); Ohrensardine, Sardinelle (Gr).

Size: To 30 cm (standard length).

Fisheries: Rarely caught in Namibia with purse seines.

Habitat and biology: Coastal, pelagic, preferring clear saline waters, usually with maximum temperatures below 24°C. A schooling migratory species, rising toward the surface at night. Feeds on zooplankton, juveniles on phytoplankton. Found only in northern Namibia typically during warm weather; common in southern Angolan waters.



***Sardinella maderensis* (Lowe, 1839)**

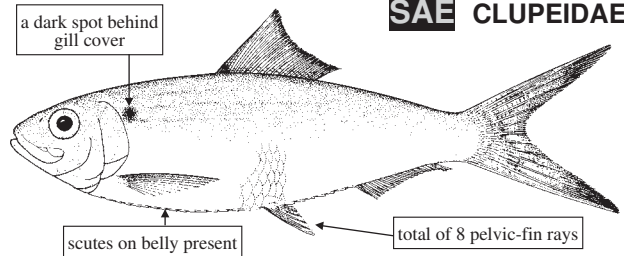
FAO names: **En** - Madeiran sardine; **Fr** - Grande allache; **Sp** - Machuelo.

Local names: Madeiran sardinelle; Madeira-sardinelle (Ak); Madeira-Sardinelle (Gr).

Size: Maximum to 30 cm (standard length).

Fisheries: Rarely caught in Namibia with purse seines.

Habitat and biology: Pelagic in coastal water from surface down to depths of 50 m. Tolerant of low salinities. Schooling. Common in Angolan waters, rare in Namibia.

**SAE** CLUPEIDAE***Sardinops ocellatus* (Pappe, 1854)**

(plate X, 74)

FAO names: **En** - Southern African pilchard; **Fr** - Sardinops d'Afrique du Sud; **Sp** - Sardina sudafricana.

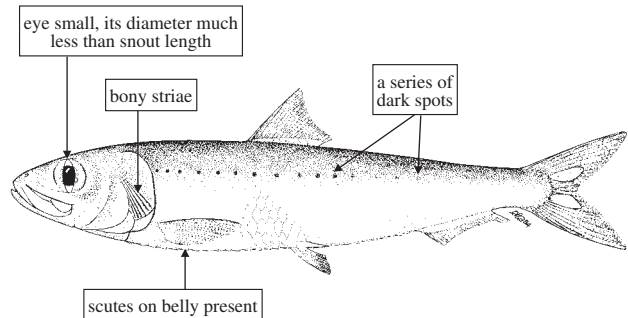
Local names: Sardyn, Suid-Afrikaanse pelser (Ak); Südafrikanische Sardine (Gr).

Size: To 30 cm (standard length).

Fisheries: Purse seines. This species constituted for many years the backbone of the Namibian pelagic fishing industry, with catches over 1 million t per year in the 1960's, but fluctuated around 50 000 t in the 1980's.

Habitat and biology: Coastal pelagic from south coast of South Africa to southern Angola, forms large schools. Juveniles feed on zooplankton, adults become opportunistic feeders on phytoplankton and zooplankton (krill, larval crabs, and other small crustaceans). Preyed upon by game fish, birds, dolphins, and seals.

Remarks: Parrish et al. (1989) concluded that the species of *Sardinops* off western South America is the same species as the pilchard off Namibia. This would make the species in Namibia *S. agax*. However, pending further evidence, we follow Whitehead (1985) in recognizing separate species of *Sardinops*.

**PIA** CLUPEIDAE***Engraulis capensis* Gilchrist, 1913**

(plate V, 33)

Synonyms: Misidentified as *E. japonicus* in "Smith's Sea Fishes" (1986). *E. encrasicolus* is another commonly used name.

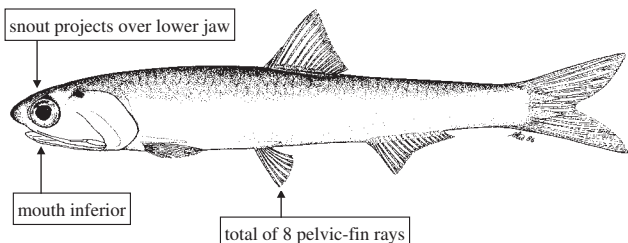
FAO names: **En** - Southern African anchovy; **Fr** - Anchois de l'Afrique australe; **Sp** - Anchoa de Africa austral.

Local names: Cape anchovy; Kaapse ansjovis (Ak); Südafrikanische Sardelle (Gr).

Size: Maximum to 17 cm.

Fisheries: Caught with purse seines. Important in the Namibian pelagic fisheries for the production of fish meal and fish oil.

Habitat and biology: Pelagic in coastal waters, but reported to a depth of over 450 m. Juvenile anchovy feed on zooplankton; adults both filter-feed (phytoplankton) and particulate-feed (zooplankton).

**ANC** ENGRAULIDAE

Arius latiscutatus* (Günther, 1864)*ARIIDAE**

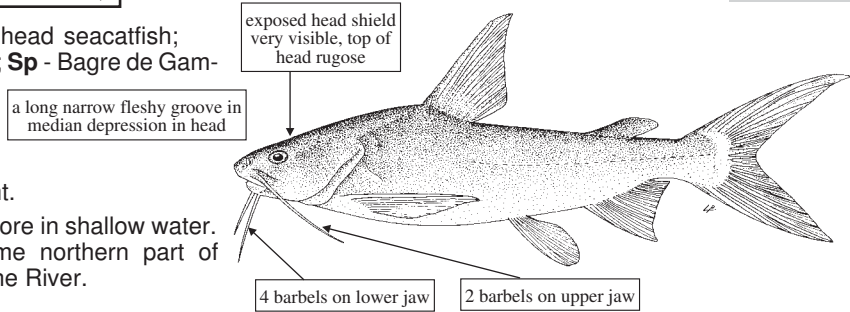
FAO names: **En** - Roughhead seacatfish; **Fr** - Mâchoiron de Gambie; **Sp** - Bagre de Gambia.

Local names:

Size: To about 50 cm.

Fisheries: None at present.

Habitat and biology: Inshore in shallow water. Found only in the extreme northern part of Namibia around the Kunene River.

***Galeichthys feliceps* Valenciennes, 1840****GAT ARIIDAE**

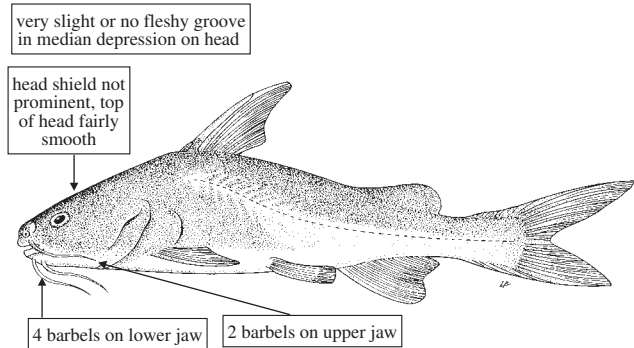
FAO names: **En** - White barbel; **Fr** - Barbillon blanc; **Sp** - Bagre barba blanca.

Local names: White seacatfish, Barbel; Wit seebaber (Ak); Katzen-Kreuzwels (Gr).

Size: To 55 cm.

Fisheries: Caught occasionally in shallow water bottom trawls and commonly by shore anglers. Caught commercially by ski-boats and marketed smoked.

Habitat and biology: Occurs in shallow coastal waters to about a depth of 120 m; also in estuaries and rivers. Feeds on the bottom, especially in very muddy areas, on crayfish, small fish, and crabs. The spines are poisonous and wounds from these should be treated immediately.

***Bajacalifornia megalops* (Lütken, 1898)**

(plate X, 75)

ALEPOCEPHALIDAE

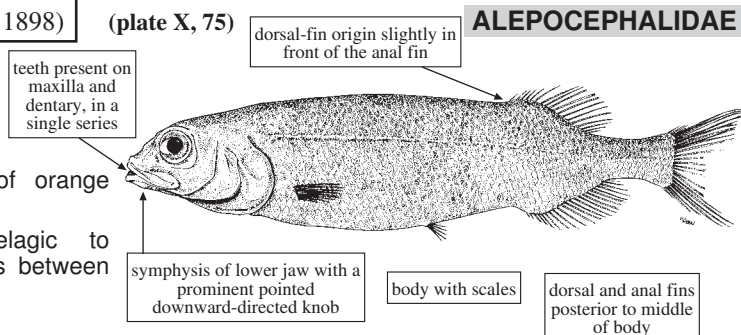
FAO names: **En** - Bigeye slickhead.

Local names:

Size: To 40 cm standard length.

Fisheries: Common in bycatch of orange roughy fishery.

Habitat and biology: Mesopelagic to benthopelagic, commonly at depths between 800 and 1 400 m.



***Chlorophthalmus agassizi* Bonaparte, 1840**

FAO names: **En** - Shortnose greeneye; **Fr** - Eperlan du large; **Sp** - Ojiverde.

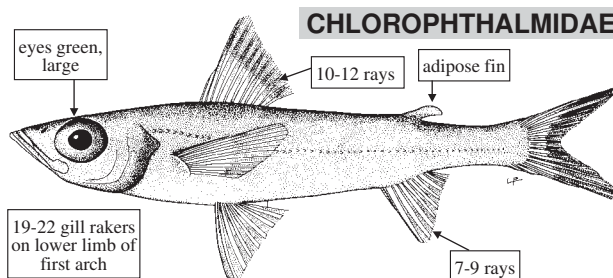
Local names:

Size: To 40 cm.

Fisheries: Caught commonly in bottom trawls.

Habitat and biology: Deeper continental shelf and upper slope, between 50 and 1000 m.

Remarks: *Chlorophthalmus atlanticus* Poll, 1953 is now considered a junior synonym of this species.

**CHLOROPHTHALMIDAE*****Chlorophthalmus punctatus* Gilchrist, 1904**

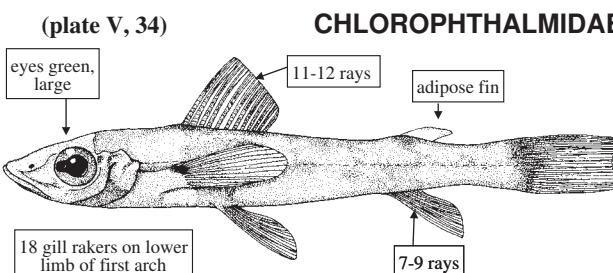
FAO names: **En** - Spotted greeneye; **Fr** - Eperlan du large tacheté; **Sp** - Ojiverde manchado.

Local names:

Size: 20 cm.

Fisheries: Caught rarely in bottom trawls.

Habitat and biology: Occurs on the deeper part of the shelf and upper slope, most common between depths of about 280 and 450 m.

**CHLOROPHTHALMIDAE*****Trachinocephalus myops* (Forster, 1801)**

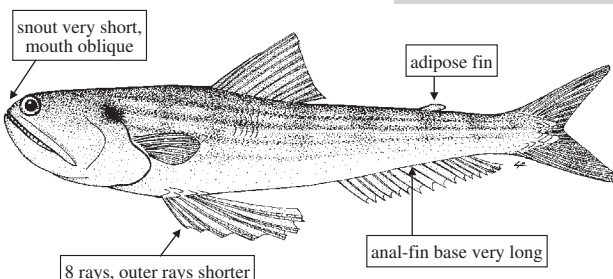
FAO names: **En** - Bluntnose lizardfish; **Fr** - Anoli serpent; **Sp** - Lagarto ñato.

Local names: Painted lizardfish; Beskilderde-akkedisvis (Ak).

Size: To 35 cm.

Fisheries: To about 38 cm total length.

Habitat and biology: A demersal species, mainly on sandy bottoms of the continental shelf, to depths of 200 m.

**SYNODONTIDAE**

Note on the identification of lanternfishes: There are approximately 49 species of Myctophidae that are likely to be found in Namibia and these are difficult to identify without a comprehensive key. Five of these species are common in Namibia (P.A. Hulley, personal communication) and illustrated here. However, their occurrence in fisheries varies greatly depending on where and when fishing is done. For a comprehensive key to all lanternfishes likely to occur in Namibia, see P. A. Hulley in Smith and Heemstra (1986).

***Diaphus hudsoni* Zubrigg and Scott, 1976**

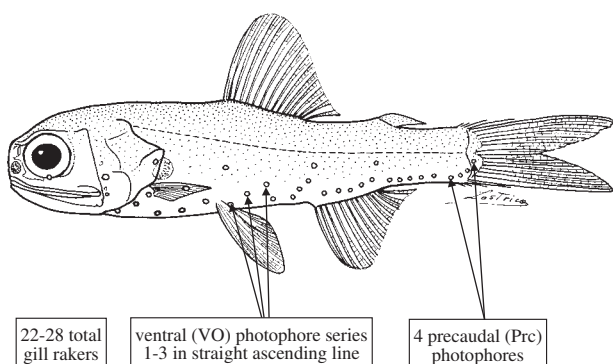
FAO names: **En** - Hudson's lanternfish; **Fr** - Lanternules de Hudson; **Sp** - Linternillas de Hudson.

Local names:

Size: To over 8 cm.

Fisheries: Common in midwater trawls.

Habitat and biology: Generally found far off-shore (oceanic) over the outer edge of the continental shelf and upper regions of the slope, mainly at depths below 250 m. Commonly taken as prey by hakes, kingklip, and Cape horse mackerel. From northern Namibia to the Orange River.

**MYCTOPHIDAE**

***Diaphus meadi* Nafpaktitis, 1978**

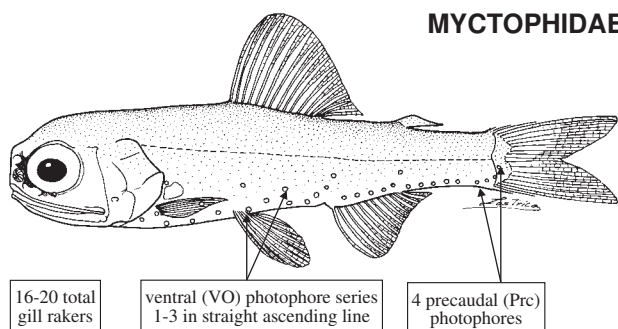
FAO names: **En** - Mead's lanternfish; **Fr** - Lanternules de Mead; **Sp** - Linternillas de Mead.

Local names:

Size: To almost 5 cm.

Fisheries: Midwater trawls and purse seines.

Habitat and biology: Over the continental shelf and slope above depths of 250 m at night. Commonly taken as prey by hakes, kingclip, and Cape horse mackerel.

**MYCTOPHIDAE*****Lampanyctodes hectoris* (Günther, 1876)**

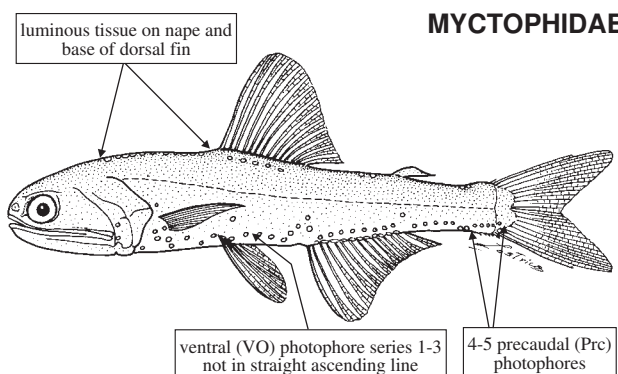
FAO names: **En** - Hector's lanternfish; **Fr** - Lanternules de Hector; **Sp** - Linternillas de Hector.

Local names:

Size: To about 6 cm.

Fisheries: Purse seines. A potential commercially important species that can be used for the production of fish meal.

Habitat and biology: Over the continental shelf and slope; pelagic, near surface at night. The most common lanternfish in Namibia.

**MYCTOPHIDAE*****Lampanyctus australis* Tåning, 1928**

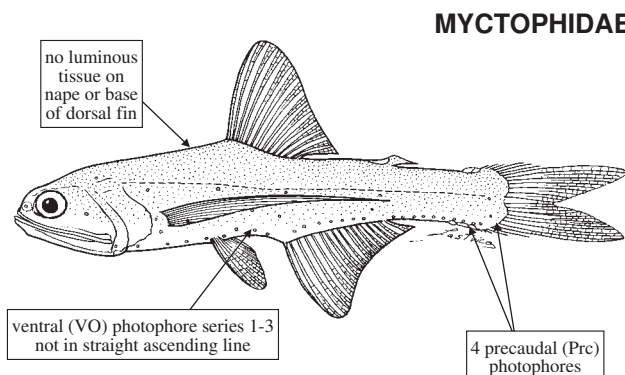
FAO names: **En** - Southern lanternfish; **Fr** - Lanternules du Sud; **Sp** - Linternillas del Sur.

Local names:

Size: To about 13 cm.

Fisheries: Midwater trawls.

Habitat and biology: Generally found far off-shore (oceanic) over the outer edge of the continental shelf and upper regions of the slope generally deeper than 500 m. Commonly taken as prey by hakes, kingclip, and Cape horse mackerel.

**MYCTOPHIDAE*****Symbolophorus boops* (Richardson, 1845)**

(plate X, 76)

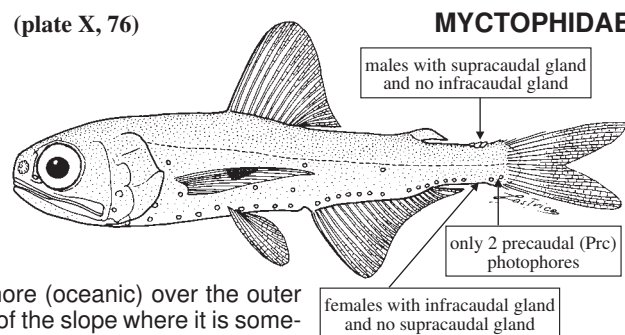
FAO names: **En** - Bogue lanternfish; **Fr** - Lanternules de Bogue; **Sp** - Linternillas de Bogue.

Local names:

Size: To about 16 cm.

Fisheries: Midwater trawl. Perhaps too far off-shore to be of potential interest to fisheries.

Habitat and biology: Generally found far offshore (oceanic) over the outer edge of the continental shelf and upper regions of the slope where it is sometimes abundant; mesopelagic, during the daytime at depths between 400 and 500 m, and migrates to surface layers at night. In southern Namibia.

**MYCTOPHIDAE**

Merluccius capensis Castelnau, 1861

(plate V, 35)

49-53 total vertebrae

HKK MERLUCCIIDAE

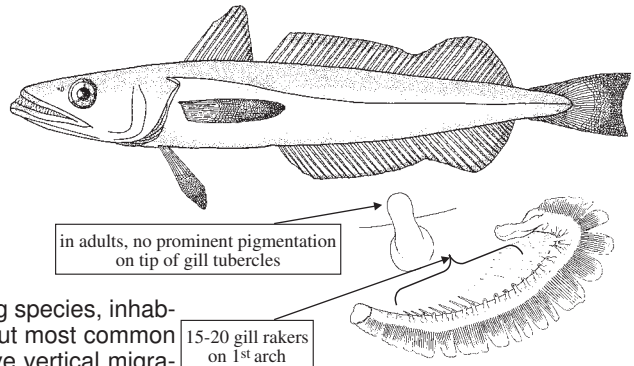
FAO names: **En** - Cape hake; **Fr** - Merlu du Cap; **Sp** - Merluza del Cabo.

Local names: Shallow-water hake; Vlakwater-stokvis (Ak); Kap-Hecht (Gr).

Size: To 110 cm.

Fisheries: Caught with bottom trawls and long line and as bycatch of midwater trawlers. Important fish of the Namibian demersal fishing industry. Juveniles are occasionally caught as a bycatch of the purse-seine fleet.

Habitat and biology: Essentially a bottom living species, inhabits waters from depths of 50 to over 1 000 m, but most common between 150 and 450 m; it carries out extensive vertical migrations, rising toward the surface at night. Juveniles feed mainly on pelagic crustaceans and myctophids, adults are opportunistic feeders and prey on a wide range of fishes, including lanternfishes, rattails, horse mackerel, and juvenile hake; cannibalism is common. Hakes are preyed upon by snoek, sharks, other hakes, seals, and occasionally by seabirds. Breeding occurs throughout the year but peaks of reproductive activity have been observed in August and September.

***Merluccius paradoxus*** Franca, 1960

(plate V, 36)

54-58 total vertebrae

HKO MERLUCCIIDAE

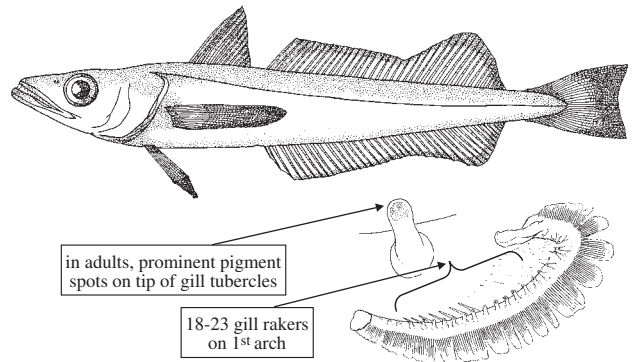
FAO names: **En** - Deepwater Cape hake; **Fr** - Merlu profond; **Sp** - Merluza de cantil.

Local names: Deepwater hake; Diepwater-stokvis (Ak); Tiefenwasser-Kapseechecht (Gr).

Size: To 115 cm.

Fisheries: Caught with bottom trawls, and rarely as a bycatch of the midwater and deep-water fisheries. An important species to the Namibian demersal fishing industry.

Habitat and biology: Generally in deeper waters than *M. capensis*, between depths of 200 and 1 000 m. Juveniles feed mainly on crustaceans, adults on mesopelagic fishes and hake. Juveniles of deepwater Cape hake are preyed upon by adults of Cape hake.

***Merluccius polli*** Cadenat, 1950**MERLUCCIIDAE**

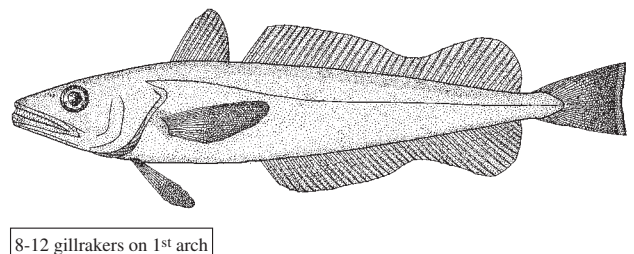
FAO names: **En** - Benguela hake; **Fr** - Merlu d'Afrique tropicale; **Sp** - Merluza de Benguela.

Local names: Benguela-Seehecht (Gr).

Size: Maximum to 80 cm, common to 38 cm.

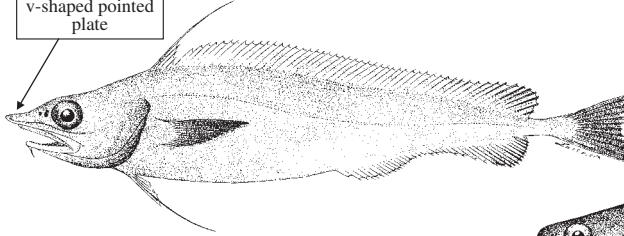
Fisheries: Occurs outside of the demersal fishing grounds.

Habitat and biology: Demersal from depths between 50 and 550 m. This is the least common of the hakes in Namibia and is mostly confined to the extreme northern part of Namibia.



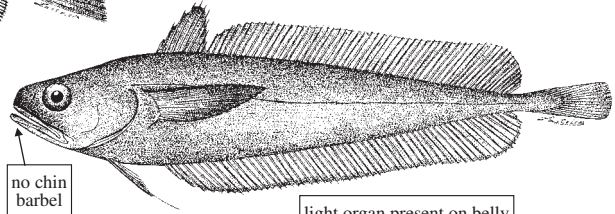
All species of **MORIDAE** reported from Namibia**MORIDAE****Moras**

snout depressed to form a broadly v-shaped pointed plate



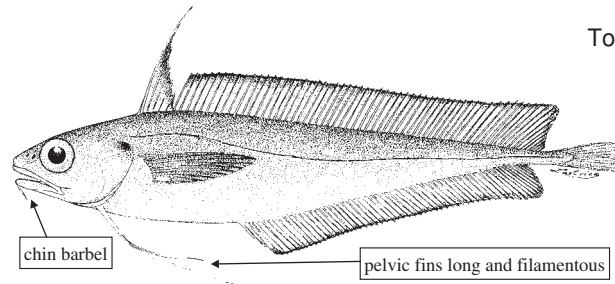
Antimora rostrata (Günther, 1878)
To about 60 cm.

no chin barbel



light organ present on belly

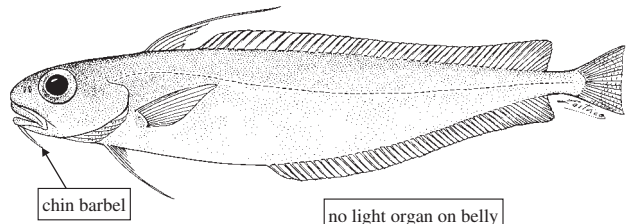
Gadella imberbis (Vaillant, 1888)
To 23 cm. Uncommon, northern Namibia.



chin barbel

pelvic fins long and filamentous

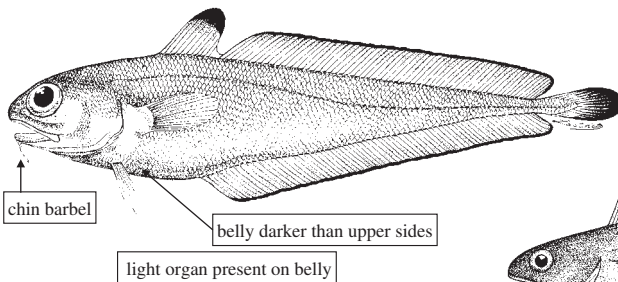
Laemonema laureysi Poll, 1953
To 30 cm. (plate X, 78)



chin barbel

no light organ on belly

Lepidion capensis Gilchrist, 1922
To 50 cm. Uncommon, southern Namibia.

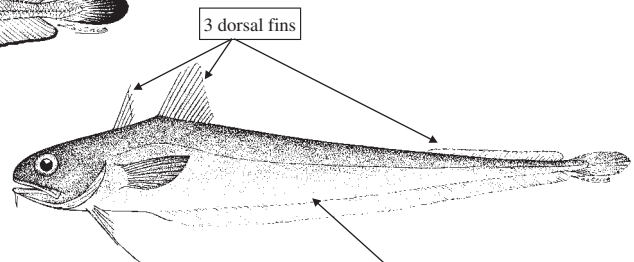


chin barbel

belly darker than upper sides

light organ present on belly

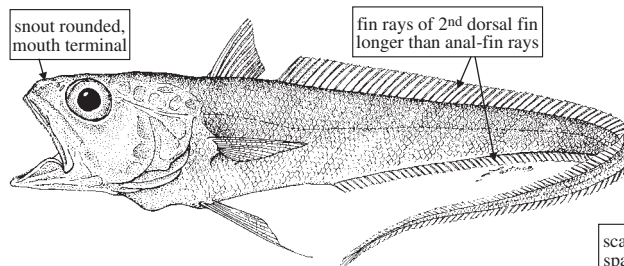
Physiculus capensis Gilchrist, 1922
To 18 cm. (plate V, 37)



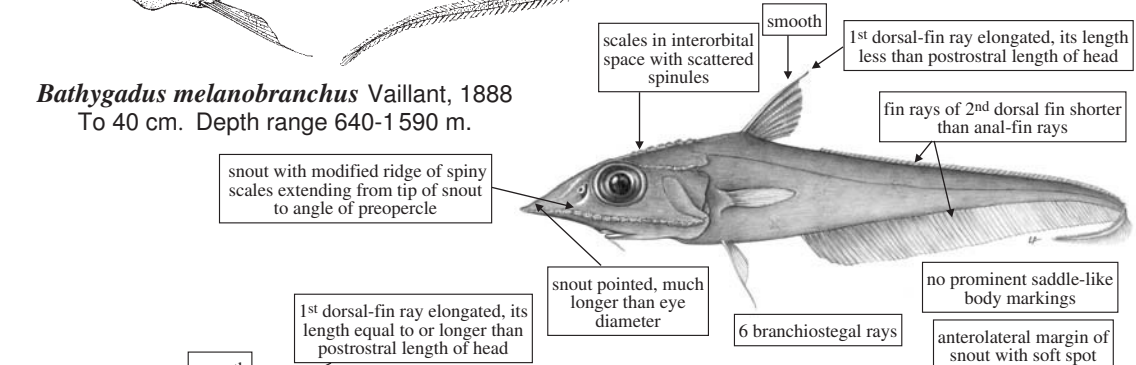
3 dorsal fins

Tripterophycis gilchristi Boulenger, 1902
To 20 cm.

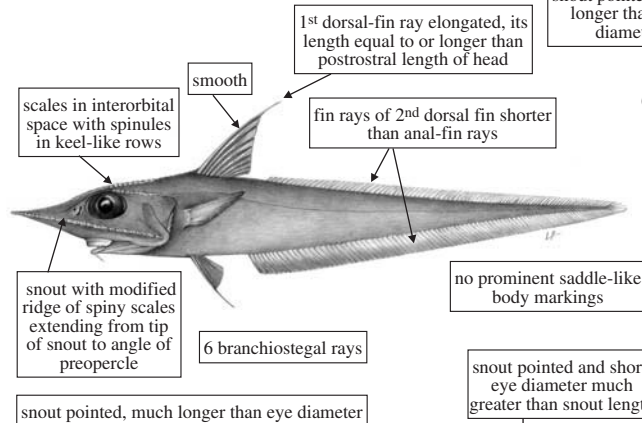
anal-fin base much longer than 3rd dorsal-fin base

Species of **MACROURIDAE** commonly reported from Namibia**MACROURIDAE****Grenadiers, Rattails**

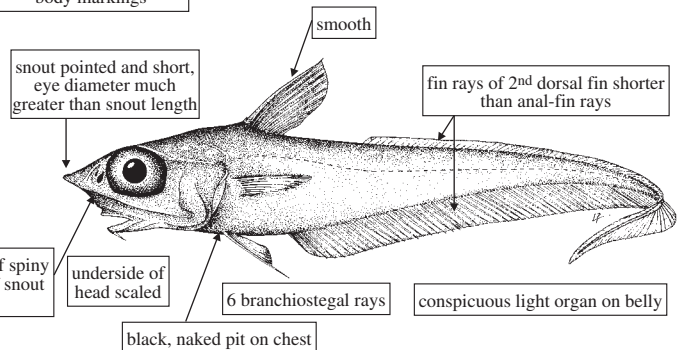
Bathygadus melanobranchus Vaillant, 1888
To 40 cm. Depth range 640-1 590 m.



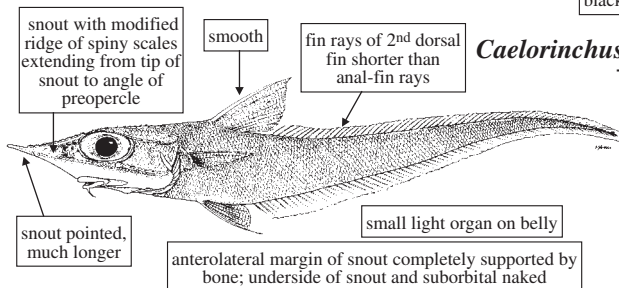
Caelorinchus acanthiger Bernard, 1925
To 40 cm. Depth range 800-1 270 m.



Caelorinchus braueri Bernard, 1925
To 40 cm. Depth range 450-1 200 m.
(plate X, 79)



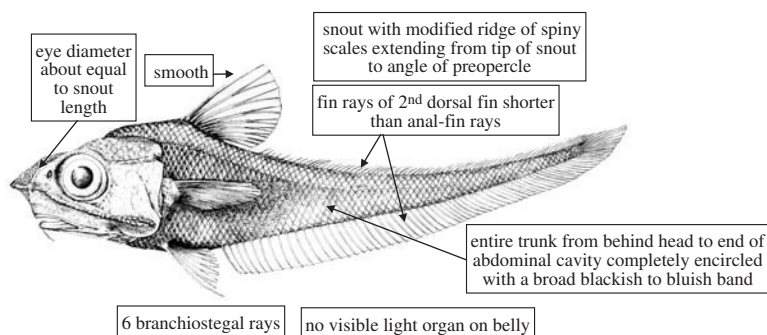
Caelorinchus caelorhincus polli Marshall and Iwamoto, 1973
To 30 cm. Depth range 230-360 m.



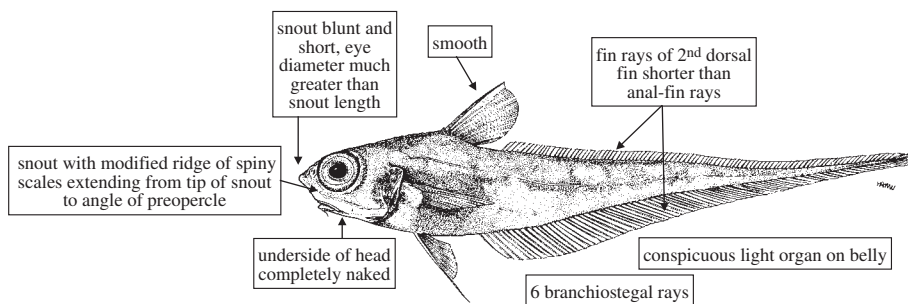
Caelorinchus karrerae Trunov, 1984
To at least 35 cm. Depth range
260-1 100 m.



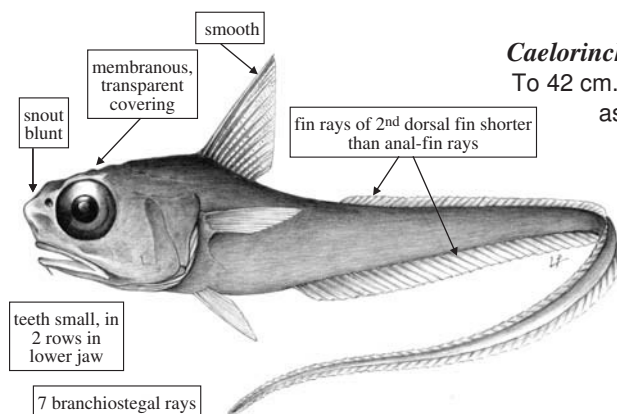
MACROURIDAE



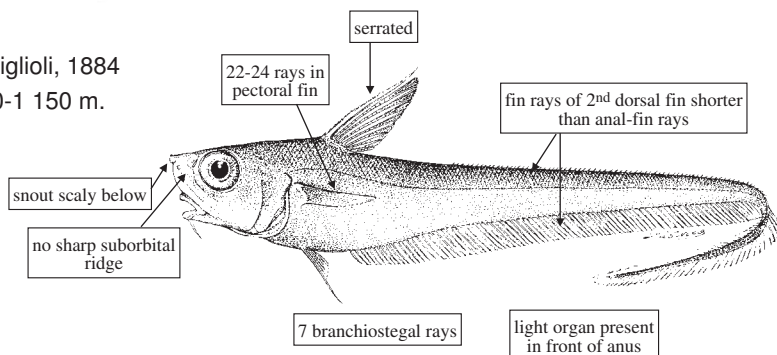
Caelorinchus matamua (McCann and McKnight, 1980)
To 65 cm. Depth range 440-900 m. (plate X, 80)



Caelorinchus simorhynchus Iwamoto and Anderson, 1994
To 42 cm. Depth range 140-990 m. (Formerly referred to as *Coelorinchus fasciatus*). (plate XI, 81)

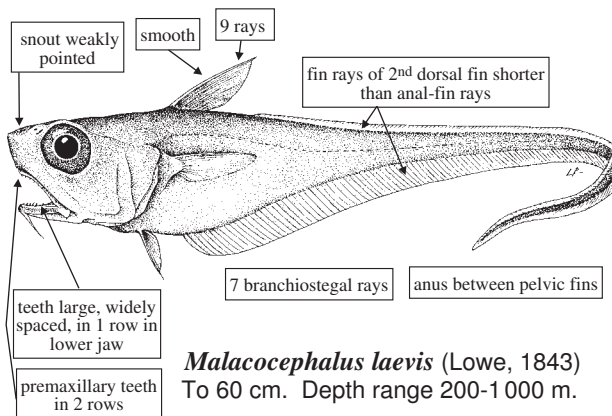


Hymenocephalus italicus Giglioli, 1884
To 20 cm. Depth range 500-1 150 m.

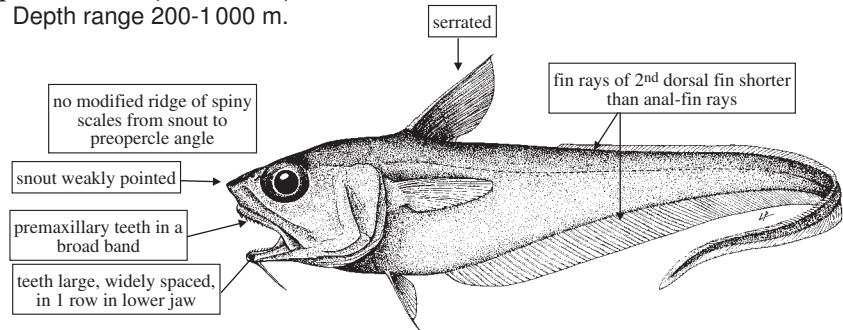


Kuronezumia leonis (Barnard, 1925)
To 40 cm. Depth range 165-850 m.

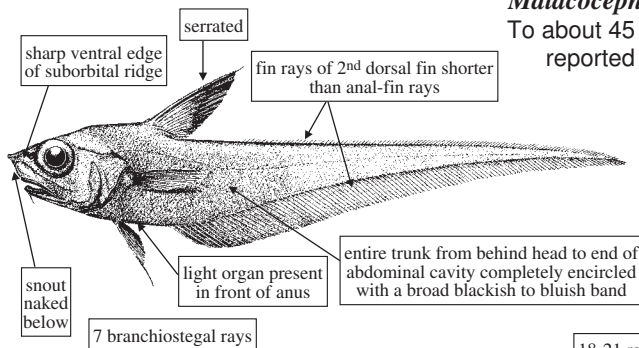
MACROURIDAE



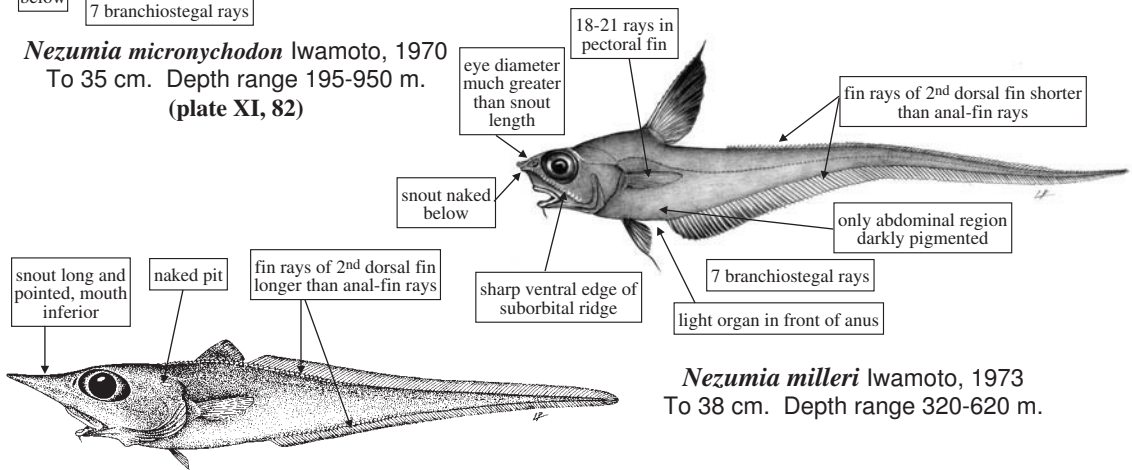
Malacocephalus laevis (Lowe, 1843)
To 60 cm. Depth range 200-1 000 m.



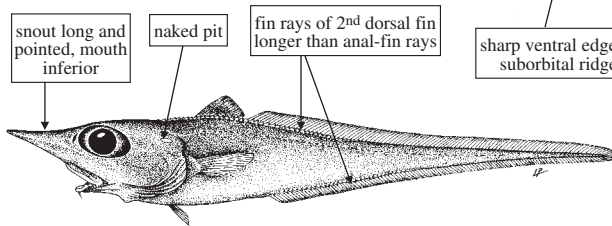
Malacocephalus occidentalis Goode and Bean, 1885
To about 45 cm. Depth range 200-600 m. So far only reported in northern Namibia off Kunene River.



Nezumia microrychodon Iwamoto, 1970
To 35 cm. Depth range 195-950 m.
(plate XI, 82)



Nezumia milleri Iwamoto, 1973
To 38 cm. Depth range 320-620 m.



Trachyrincus scabrus (Rafinesque, 1810)
To 60 cm. Depth range 395-1 495 m.
(plate V, 38)



Dicrolene intronigra* Goode and Bean, 1883*OPHIDIIDAE**

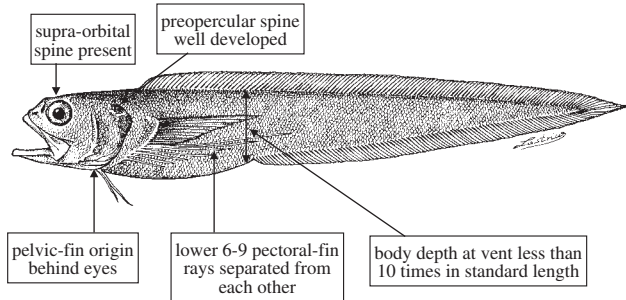
FAO names: **En** - Digitate cusk eel; **Fr** - Abadèche doigts; **Sp** - Pagador.

Local names:

Size: To 30 cm.

Fisheries: Rarely caught in bottom trawls.

Habitat and biology: On the continental slope from depths of 200 to 1 000 m, especially in the Walvis Bay area. *Dicrolene pallidus* is also reported from Namibia, but commonly at depths greater than 2 700 m. *D. pallidus* has the supra-orbital and preopercular spine absent or weak.

***Genypterus capensis* (Smith, 1847)**

(plate V, 39)

KCP OPHIDIIDAE

Synonyms: *Xiphiurus capensis* Smith, 1847.

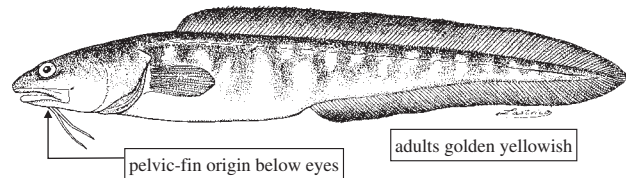
FAO names: **En** - Kingklip; **Fr** - Abadèche du Cap; **Sp** - Rosada.

Local names: Koningklip (Ak); Südafrikanischer Kingklip (Gr).

Size: To 160 cm.

Fisheries: Caught mainly with longlines and in bottom trawls. Was important commercially, but was heavily overfished and catches now amount to a few thousand tonnes a year.

Habitat and biology: A bottom-dwelling fish inhabiting rocky areas of the continental shelf and upper slope from depths of 50 to 500 m, but reported to be abundant between 250 and 350 m; juveniles occur in shallower waters than adults. Feeds mainly on the bottom, on dragonets, mantis shrimps, hake, squid, and a variety of fish. Sexual maturity is reached at 4 to 5 years (50-60 cm). Spawning takes place from August to October. Occurs mainly in the south.

***Lamprogrammus exutus* Nybelin and Poll, 1958****OPHIDIIDAE**

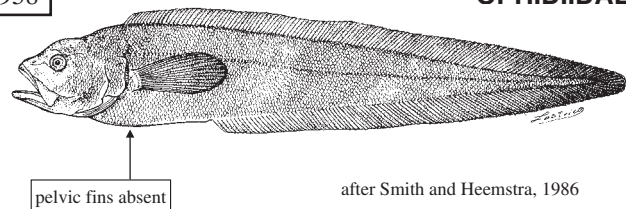
FAO names: **En** - Legless cuskeel; **Fr** - Abadèche sans jambes; **Sp** - Cabellera.

Local names:

Size: To 40 cm.

Fisheries: Caught occasionally in bottom trawls.

Habitat and biology: Caught on or above the continental slope, from depths of 260 to 800 m, but mainly between 550 and 700 m. From northern Namibia south to Walvis Bay.

***Selachophidium guentheri* Gilchrist, 1903**

(plate V, 40)

OPHIDIIDAE

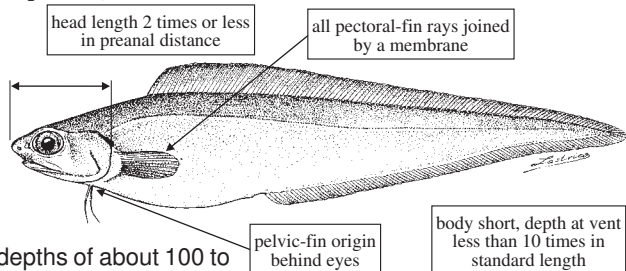
FAO names: **En** - Gunther's cuskeel; **Fr** - Abadèche de Günther; **Sp** - Lengua de lagarto.

Local names:

Size: To 30 cm.

Fisheries: Caught occasionally in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: On the upper slope, from depths of about 100 to 800 m; a typical deep-water shelf-break inhabitant. Most abundant in the Walvis Bay region, at depths between 200 and 400 m.



Spectrunculus grandis (Günther, 1877)

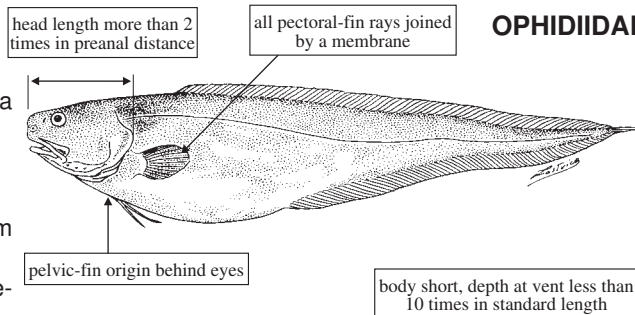
FAO names: **En** - Pudgy cuskeel;
Fr - Abadèche boulotte; **Sp** - Congriperla gruesa.

Local names:

Size: To 127 cm.

Fisheries: Caught occasionally in bottom trawls.

Habitat and biology: Demersal at depths between 800 and 4 300 m.


OPHIDIIDAE
Chatrabus melanurus (Barnard, 1927)

Synonyms: *Chatabrus damaranus* (Barnard, 1927).

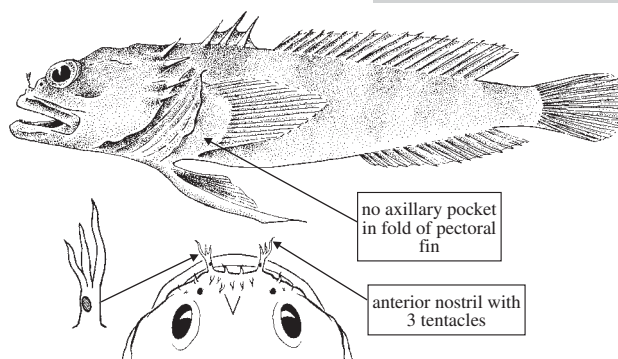
FAO names: **En** - Humpback toadfish;
Fr - Crapaud angolais; **Sp** - Sapo chasquilla.

Local names: Boggel-platannavis (Ak).

Size: To 25 cm.

Fisheries: Caught occasionally in bottom trawls.

Habitat and biology: A bottom-living species, locally abundant at depths of 120 to 250 m, but also recorded to about 600 m.


BATRACHOIDIDAE
Perulibatrachus elminensis (Bleeker, 1863)

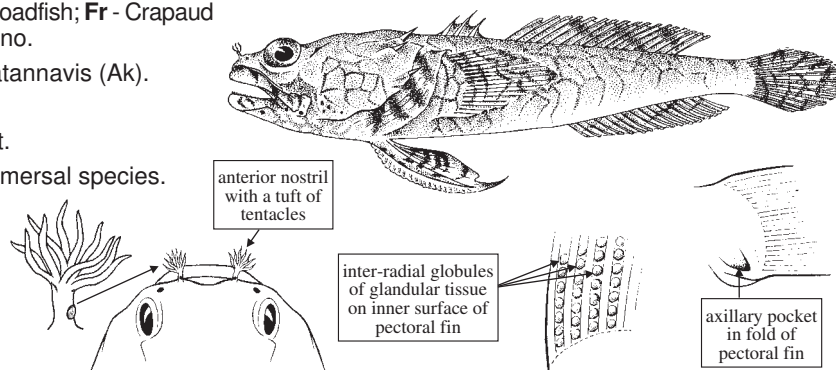
FAO names: **En** - Guinean toadfish; **Fr** - Crapaud guinéen; **Sp** - Sapo guineano.

Local names: Guineese-platannavis (Ak).

Size: To 35 cm.

Fisheries: None at present.

Habitat and biology: A demersal species.


BATRACHOIDIDAE
Perulibatrachus rossignoli (Roux, 1957)

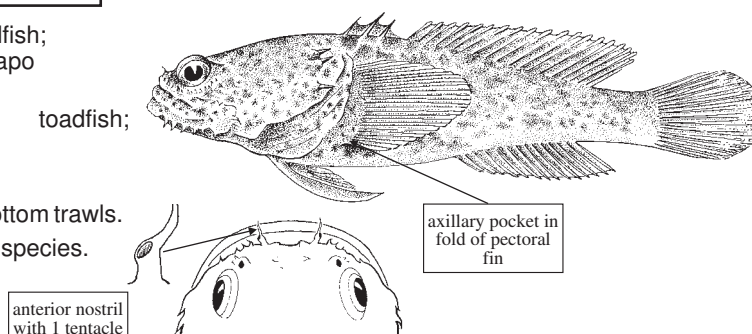
FAO names: **En** - Rossignol toadfish;
Fr - Crapaud de Rossignol; **Sp** - Sapo de Rossignol.

Local names: Westcoast toadfish;
Weskus-platannavis (Ak).

Size: To 30 cm.

Fisheries: Caught incidentally in bottom trawls.

Habitat and biology: A demersal species.


BATRACHOIDIDAE

Lophius vaillanti* Regan, 1903*MVA LOPHIIDAE**

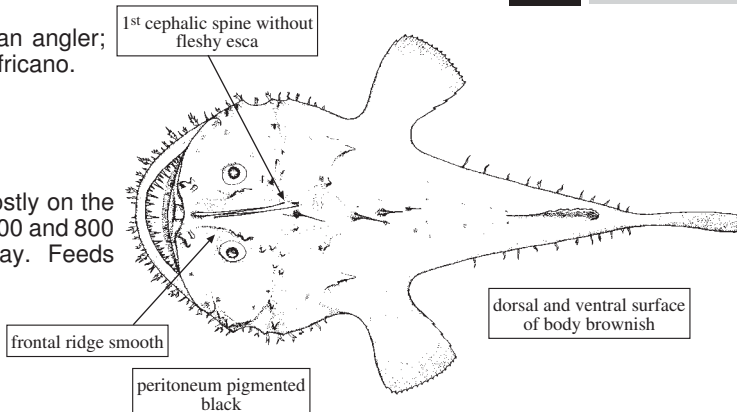
FAO names: **En** - Shortspine African angler; **Fr** - Baudroie africaine; **Sp** - Rape africano.

Local names: Monk; Monnik (Ak).

Size: To 50 cm.

Fisheries: Caught by trawl in north.

Habitat and biology: Demersal, mostly on the upper slope between the depths of 200 and 800 m. Found mainly north of Walvis Bay. Feeds mainly on fishes.

***Lophius vomerinus* Valenciennes, 1837**

(plate VI, 41)

MVO LOPHIIDAE

Synonyms: *Lophius upsicephalus* Smith, 1841.

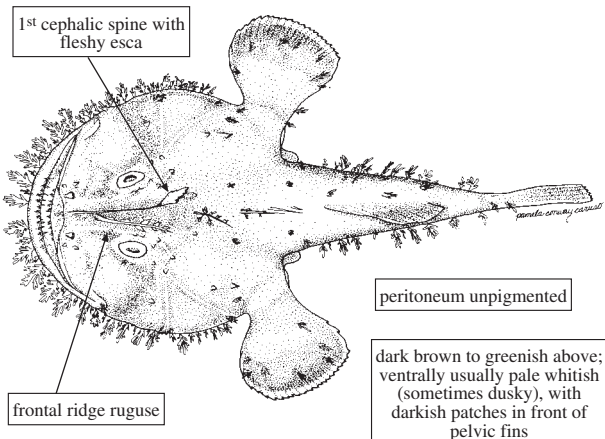
FAO names: **En** - Cape monk; **Fr** - Baudroie du Cap; **Sp** - Rape del Cabo.

Local names: Monk; Monnik (Ak); Westafrikanischer Anglerfisch (Gr).

Size: To 100 cm.

Fisheries: Caught with directed bottom trawls and also a significant bycatch of the hake fishery. Total catch averaged more than 10000 t in the mid-1990s. Experimental fishing with gill-nets started in 1998.

Habitat and biology: Found on the deeper continental shelf and upper slope, from depths of about 200 to 400 m. Feeds on various bottom-living fishes and occasionally on pilchard, round herring, and horse mackerel. Maturity is reached at 4 years (about 40 cm).



Remarks: A similar species, *Lophius budegassa* has also been reported from Namibia but it normally is found in countries much further north and its presence in Namibia still needs to be confirmed.

Atherina breviceps* Valenciennes, 1835*ATHERINIDAE**

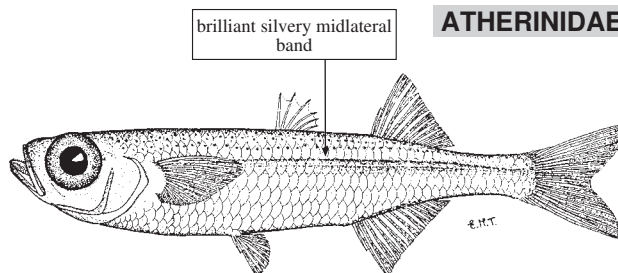
FAO names: **En** - Cape silverside; **Fr** - Athérine du Cap; **Sp** - Pejerrey del Cabo.

Local names: Kaapse spierinkie (Ak).

Size: To 11 cm.

Fisheries: Rarely caught in purse seines.

Habitat and biology: A shallow-water species, found in schools in bays and estuaries especially in spring. Mainly off southern Namibia.



Exocoetus volitans* Linnaeus, 1758*EXOCOETIDAE**

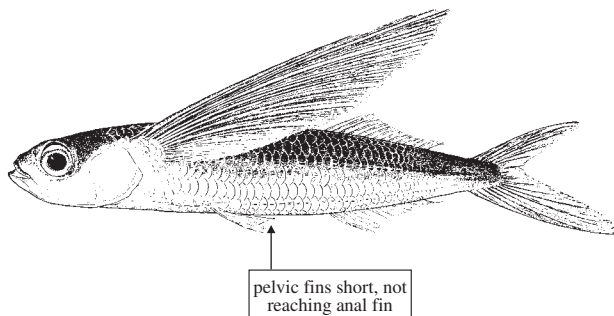
FAO names: **En** - Tropical two-wing flyingfish; **Fr** - Exocet volant; **Sp** - Volador.

Local names: Tropiese tweevlerk-vliegende vis (Ak); Fliegender Fisch, Flugfisch (Gr).

Size: To 18 cm.

Fisheries: None at present.

Habitat and biology: Pelagic in open ocean surface waters. Able to leap out of the water and glide for long distances.

***Hirundichthys rondeletii* (Valenciennes, 1846)****EXOCOETIDAE**

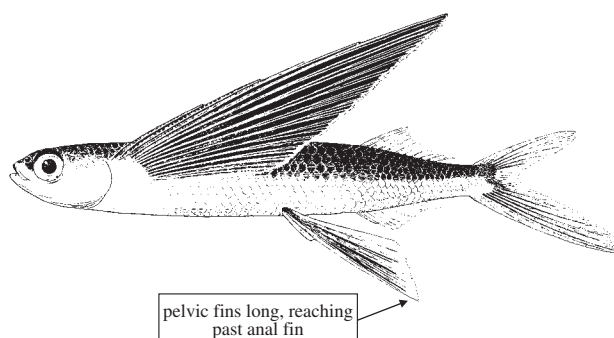
FAO names: **En** - Blackwing flyingfish; **Fr** - Exocet aile noire; **Sp** - Volador aleta negra.

Local names: Subtropical flyingfish; Subtropies vliegende vis (Ak); Fliegender Fisch, Flugfisch (Gr).

Size: To 25 cm (standard length).

Fisheries: None at present.

Habitat and biology: Pelagic in open ocean waters. Able to leap out of the water and glide for long distances.

***Nanichthys simulans* Hubbs and Wisner, 1980****SCOMBERESOCIDAE**

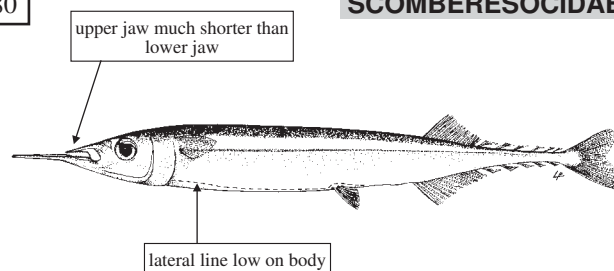
FAO names: **En** - Dwarf saury; **Fr** - Balaou nain; **Sp** - Paparda enana.

Local names: Dwergr-saurie (Ak).

Size: To 13 cm.

Fisheries: Caught incidentally in pelagic trawls.

Habitat and biology: An oceanic and surface schooling fish, whose habits and biology are not well known. Feeds on small planktonic forms. Often confused as the juvenile form of *Scomberesox saurus scomberoides*.

***Scomberesox saurus scomberoides* (Richardson, 1842)** (plate VI, 42)**SCOMBERESOCIDAE**

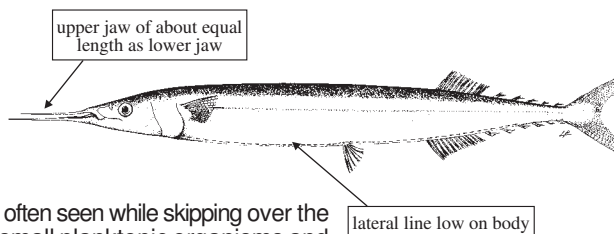
FAO names: **En** - Atlantic saury; **Fr** - Balaou atlantique; **Sp** - Paparda del Atlántico.

Local names: Saury; Saurie (Ak); Atlantischer Makrelenhecht, Makrelenhecht (Gr).

Size: To about 50 cm.

Fisheries: None at present.

Habitat and biology: Oceanic, surface-schooling, often seen while skipping over the surface probably to escape predators. Feeds on small planktonic organisms and are preyed upon by yellowfin tuna, Cape gannets, and marine mammals. Migrates from spawning areas to cool temperate and plankton-rich waters.



Lampris guttatus* (Brünnich, 1788)*LAMPRIDAE**

FAO names: **En** - Opah; **Fr** - Opah; **Sp** - Opa.

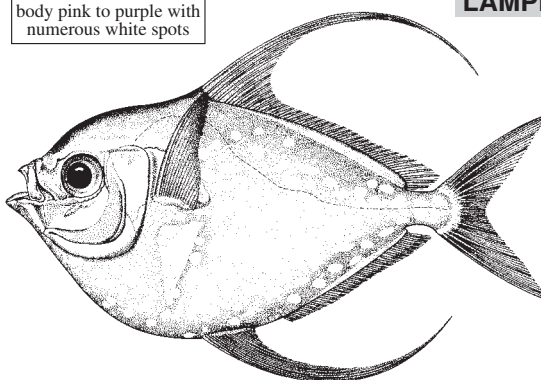
Local names: Spotted opah; Gespikkelde opah (Ak); Gotteslachs (Gr).

Size: To 180 cm and over 200 kg.

Fisheries: Rarely taken with longlines or trawls. Occasionally caught by the swordfish fishery.

Habitat and biology: A member of the deeper epipelagic and oceanic community. Usually solitary, swims by flapping the pectoral fins. Feeds chiefly on cuttlefish, crustaceans, and bony fishes.

body pink to purple with numerous white spots

***Trachipterus trachipterus* (Gmelin, 1789)****TRACHIPTERIDAE**

FAO names: **En** - Peregrine ribbonfish.

Local names: Rondswerwer-lintvis (Ak).

Size: To 213 cm.

Fisheries: Sometimes caught as bycatch in trawls.

Habitat and biology: Offshore epipelagic. Swims with head up.

lateral line well above ventral edge of tail



body depth 3.4-4.1 times in distance from snout to anus

bony tubercles along bottom edge of tail

Zu cristatus* (Bonelli, 1820)*TRACHIPTERIDAE**

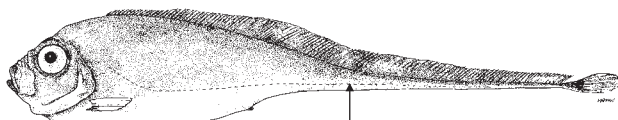
FAO names: **En** - Scalloped ribbonfish.

Local names: Skulprand-lintvis (Ak).

Size: To 118 cm standard length.

Fisheries: Uncommonly caught as bycatch in trawls.

Habitat and biology: Offshore epipelagic. Swims with head up.



lateral line along ventral edge of tail, in a row of spiny plates

body depth 1.5-2.9 times in distance from snout to anus

Guentherus altivela* Osorio, 1917*ATELEPODIDAE**

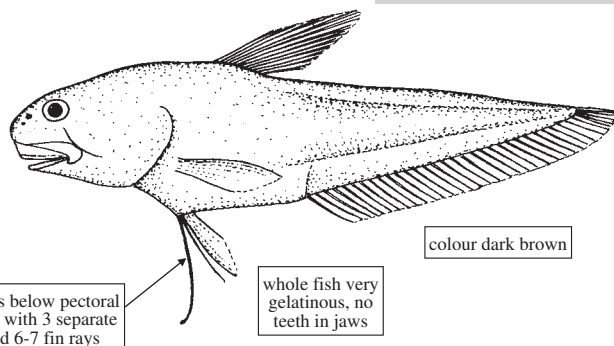
FAO names: **En** - Highfin tadpole fish; **Fr** - Atéleopode grande negeoire; **Sp** - Ancestro negro.

Local names:

Size: To 2 m.

Fisheries: Sometimes caught in bottom trawls.

Habitat and biology: A demersal species, on the upper continental slope.

***Ijimaia loppei* Roule, 1922****ATELEPODIDAE**

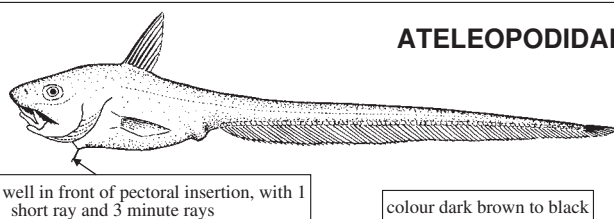
FAO names: **En** - Loppe's tadpole fish; **Fr** - Atéleopode de Loppe; **Sp** - Pata de pulpo.

Local names:

Size: To 2 m.

Fisheries: None at present.

Habitat and biology: A demersal species, found on the upper slope to a depth of 450 m.

***Beryx splendens* Lowe, 1834 (plate VI, 43)****BYS BERYCIDAE**

FAO names: **En** - Splendid alfoncino; **Fr** - Bérux long; **Sp** - Alfonsino besugo.

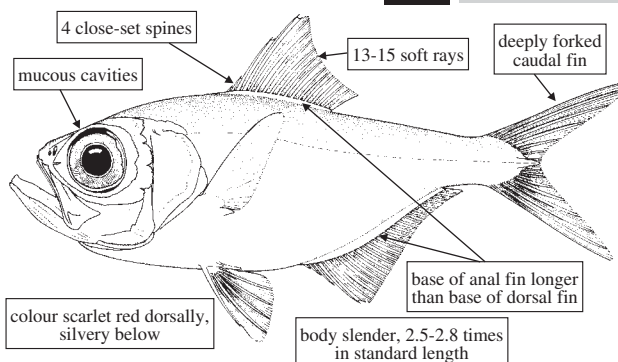
Local names: Slender beryx; Slank beryx (Ak).

Size: To 45 cm.

Fisheries: Caught in bottom trawls as a bycatch of the hake fishery. Mainly a targeted species of the deep-water fishery. A bycatch of midwater trawlers in the north.

Habitat and biology: A demersal species of the upper continental slope from depths of 200 to 800 m, mainly between 400 and 600 m; juveniles are pelagic.

Remarks: The shape of the caudal fin and length of anal-fin base easily distinguish this species from other common "redfish" such as the Jacopever (*Helicolenus dactylopterus*) and Large-eye dentex (*Dentex macrophthalmus*).

***Diretmoides parini* Post and Quéro, 1981****DIRETMIDAE**

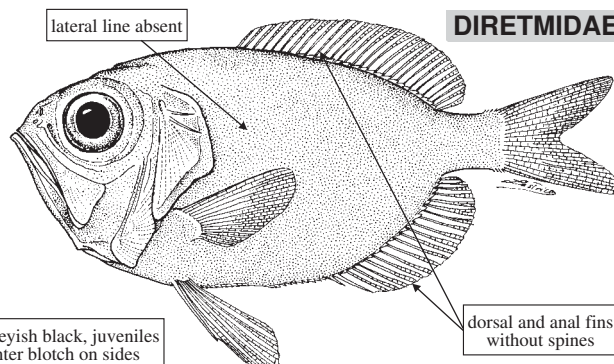
FAO names: **En** - Parin's spiny fin; **Fr** - Drette de Parin; **Sp** - Malcarado de Parin.

Local names:

Size: To 40 cm.

Fisheries: Caught incidentally in trawls.

Habitat and biology: Adults mesopelagic below 500 m, juveniles near the surface. Feeds on small crustaceans and planktonic organisms.



***Gephyroberyx darwini* (Johnson, 1866)**

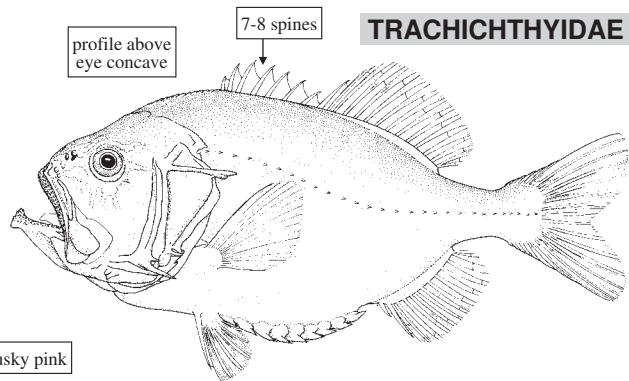
FAO names: **En** - Darwin's slimehead;
Fr - Hoplostete de darwin; **Sp** - Reloj de Darwin.

Local names:

Size: To 60 cm.

Fisheries: Caught mainly in bottom trawls, between depths of 200 and 500 m.

Habitat and biology: Lives close to the bottom, from depths of 100 to 1 000 m.

**TRACHICHTHYIDAE*****Hoplostethus atlanticus* Collet, 1896**

(plate XI, 83,84)

ORY TRACHICHTHYIDAE

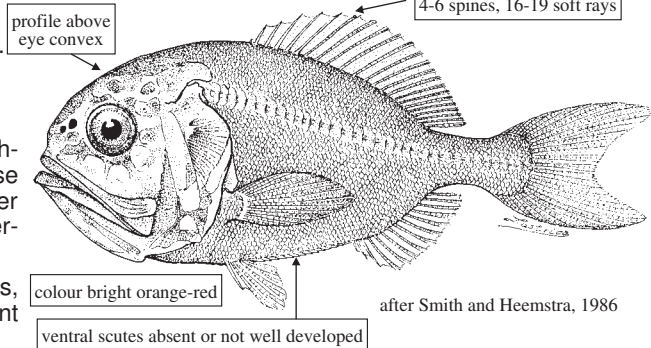
FAO names: **En** - Orange roughy;
Fr - Hoplostete orange; **Sp** - Reloj anaranjado.

Local names: Atlantischer Sägebauch (Gr).

Size: To 70 cm.

Fisheries: Target species of deep-water fishery. Caught in bottom trawls targeting dense aggregations. Initial catches above 12 000 t per annum, but subsequently reduced considerably.

Habitat and biology: A bathypelagic species, from depths of 400 to 1 100 m, most abundant between 400 and 800 m.

***Hoplostethus cadenati* Quéro, 1974**

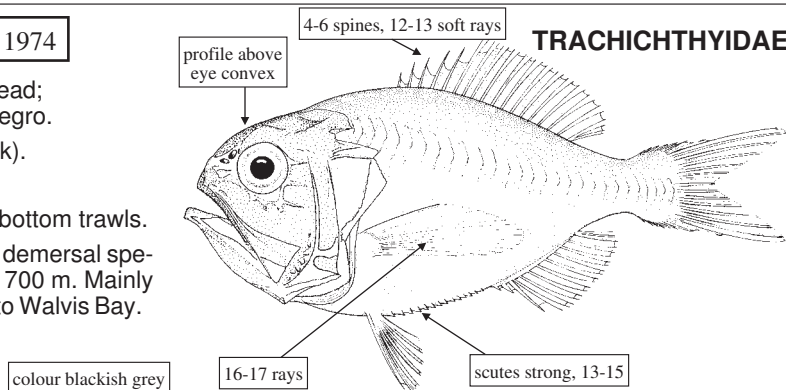
FAO names: **En** - Black slimehead;
Fr - Hoplostete noir; **Sp** - Reloj negro.

Local names: Swart slymkop (Ak).

Size: To 30 cm.

Fisheries: Caught commonly in bottom trawls.

Habitat and biology: A primarily demersal species, between depths of 200 and 700 m. Mainly off northern Namibia, southward to Walvis Bay.

**TRACHICHTHYIDAE*****Hoplostethus mediterraneus* Cuvier, 1829**

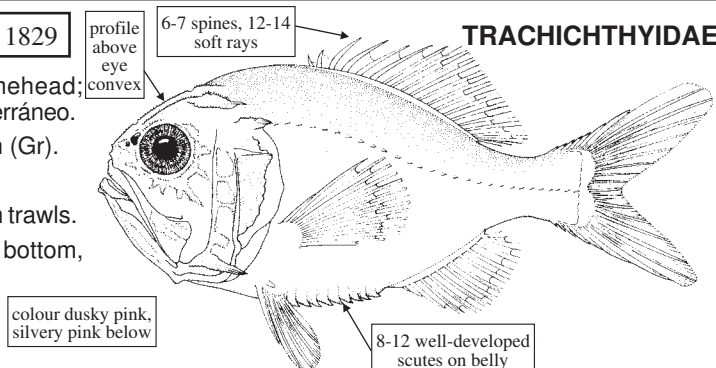
FAO names: **En** - Mediterranean slimehead;
Fr - Hoplostete argenté; **Sp** - Reloj mediterráneo.

Local names: Mittelmeer-Kaiserbarsch (Gr).

Size: To 40 cm.

Fisheries: Caught incidentally in bottom trawls.

Habitat and biology: Lives close to the bottom, from depths of 200 to 700 m.

**TRACHICHTHYIDAE**

***Hoplostethus melanopus* (Weber, 1913)**

(plate VI, 44)

TRACHICHTHYIDAE

FAO names: **En** - Smallscale slimehead; **Fr** - Hoplostete scutelle; **Sp** - Reloj escama pequeña.

Local names:

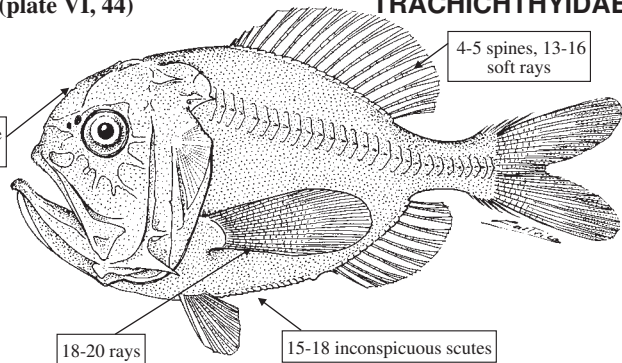
Size: To 25 cm.

Fisheries: Caught incidentally in bottom trawls.

Habitat and biology: Lives close to the bottom, from depths of 400 to 900 m.

profile above eye convex

colour brownish grey

***Zenopsis conchifer* (Lowe, 1852)****ZEIDAE**

FAO names: **En** - Silvery John dory; **Fr** - Saint Pierre argenté; **Sp** - San Pedro plateado.

Local names: Buckler dory; Beukelaar-dorie (Ak); Amerikanischer Petersfisch (Gr).

Size: To 75 cm.

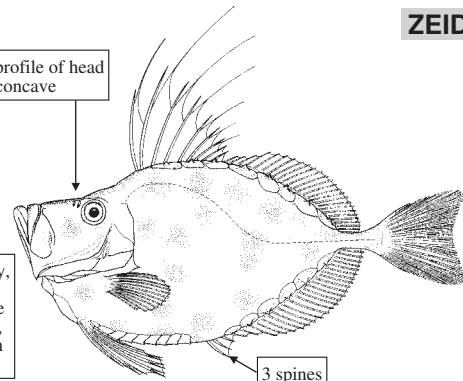
Fisheries: Caught occasionally with bottom trawls.

Habitat and biology: A demersal species, from depths of 90 to 400 m, mainly between 150 and 300 m. Feeds on a wide variety of bony fishes.

upper profile of head concave

colour silvery, sometimes with obscure dusky spots, especially in juveniles

3 spines

***Zeus capensis* Valenciennes, 1835**

(plate VI, 45)

ZEIDAE

FAO names: **En** - Cape John dory; **Fr** - Saint Pierre du Cap; **Sp** - San Pedro del Cabo.

Local names: Cape dory; Kaapse dorie (Gr).

Size: To 90 cm.

Fisheries: Caught occasionally in bottom trawls.

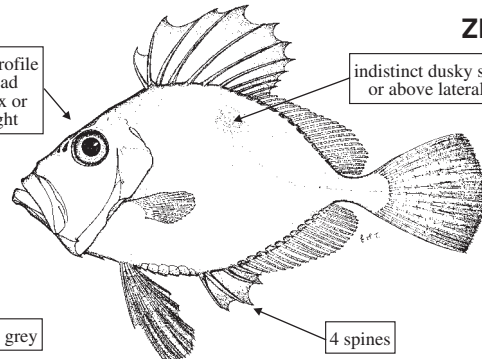
Habitat and biology: Demersal in depths between 35 and 200 m.

upper profile of head convex or straight

indistinct dusky spot on or above lateral line

colour silvery grey

4 spines

***Zeus faber* Linnaeus, 1758****JOD ZEIDAE**

FAO names: **En** - John dory; **Fr** - Saint Pierre; **Sp** - Pez de San Pedro.

Local names: Jandorie (Ak); Heringskönig, Petersfisch, Sonnenfisch (Gr); Sanmartin (Sp).

Size: To 65 cm.

Fisheries: Caught occasionally with bottom trawls.

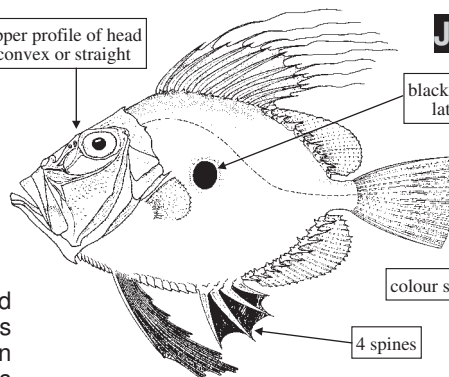
Habitat and biology: A demersal species, found from coastal waters to a depth of 400 m. Feeds mainly on schooling bony fishes, occasionally on crustaceans and cephalopods. Sexual maturity is reached at the age of 4 years, eggs pelagic.

upper profile of head convex or straight

black spot below lateral line

colour silvery grey

4 spines



Allocyttus verrucosus (Gilchrist, 1906)

(plate XI, 85)

OREOSOMATIDAE

FAO names: En - Warty oreo.**Local names:** Black oreo.**Size:** To 38 cm but commonly less than 25 cm.**Fisheries:** Commonly caught as bycatch in orange roughy fishery, not yet utilized.**Habitat and biology:** Adults demersal, over rough bottom at depths between 338 and 1 300 m, but most common at depths greater than 800 m; juveniles pelagic in midwater to surface. Feeds on shrimp, cephalopods, and fish.

predorsal profile convex, nearly straight, or moderately concave

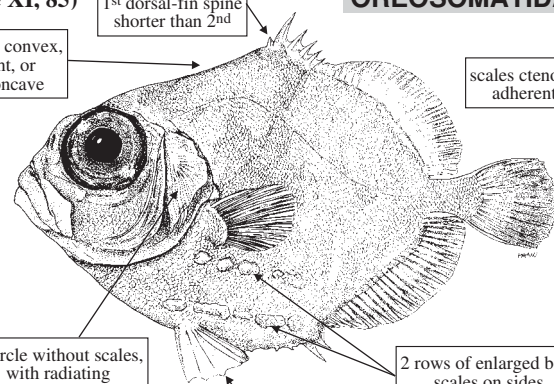
1st dorsal-fin spine shorter than 2nd

scales ctenoid, adherent

opercle without scales, with radiating striations

1 spine and 6 soft rays

2 rows of enlarged bony scales on sides, becoming less distinct with age

*Neocyttus rhomboidalis* Gilchrist, 1906

(plate XI, 86)

OREOSOMATIDAE

FAO names: En - Spikey oreo.**Local names:****Size:** To 34 cm.**Fisheries:** Caught in fairly large quantities as bycatch in orange roughy fishery but not yet utilized.**Habitat and biology:** Adults demersal, over rough bottom at depths between 200 and 1 077 m, but most common between 600 to 900 m; juveniles pelagic in midwater to surface.

predorsal profile strongly concave

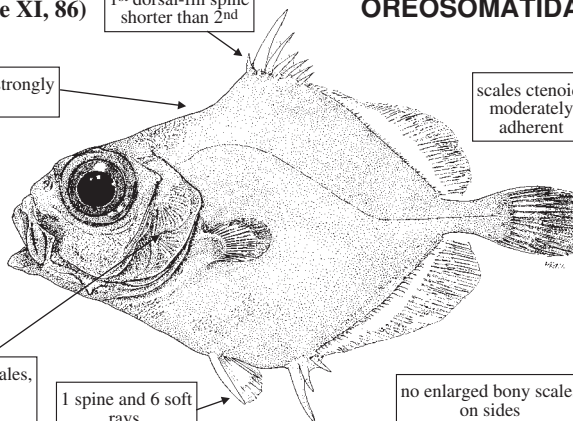
1st dorsal-fin spine shorter than 2nd

scales ctenoid, moderately adherent

opercle without scales, with radiating striations

1 spine and 6 soft rays

no enlarged bony scales on sides

*Pseudocyttus maculatus* Gilchrist, 1906

OREOSOMATIDAE

FAO names: En - Smooth oreo.**Local names:****Size:** To 50 cm.**Fisheries:** Uncommonly caught as bycatch in orange roughy fishery.**Habitat and biology:** Adults demersal, over rough bottom at depths between 400 and 1 200 m, but most common at depths between 900 and 1 100 m; juveniles pelagic in midwater to surface.

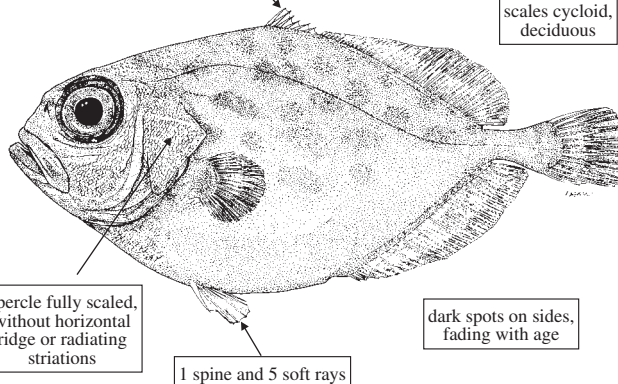
1st dorsal-fin spine longer than 2nd

scales cycloid, deciduous

opercle fully scaled, without horizontal ridge or radiating striations

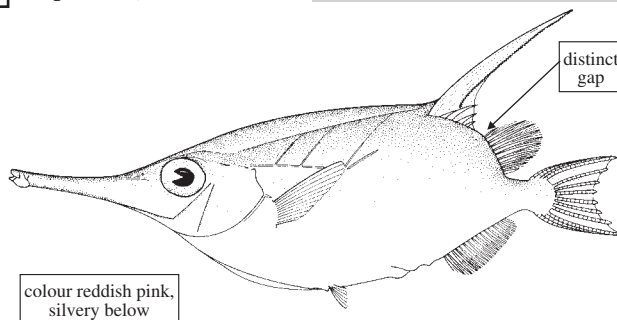
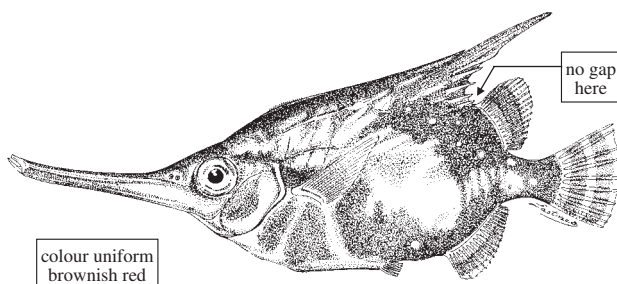
1 spine and 5 soft rays

dark spots on sides, fading with age



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

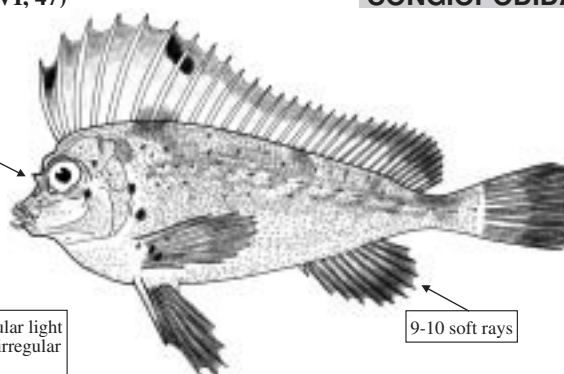
(plate VI, 46)

MACRORAMPHOSIDAE**FAO names:** **En** - Longspine snipefish;**Fr** - Bécasse de mer; **Sp** - Trompetero.**Local names:** Slender snipefish; Slank snipvis (Ak); Schnepfenfisch (Gr).**Size:** To 20 cm.**Fisheries:** Taken incidentally in trawl fisheries.**Habitat and biology:** Adults occur close to the bottom, to depths of 500 m, usually between 50 and 150 m, juveniles are epipelagic in oceanic waters. Feed on bottom and pelagic invertebrates.***Notopogon macrosolen* Barnard, 1925****MACRORAMPHOSIDAE****FAO names:** **En** - Longspine bellowfish; **Fr** - Bécasse de mer tacheté; **Sp** - Trompetero manchado.**Local names:** Longsnout bellowsfish; Langsnoet-blaasbalkvis (Ak).**Size:** To 33 cm.**Fisheries:** Rarely caught in trawls.**Habitat and biology:** Usually caught between depths of 200 and 500 m. Mainly off southern Namibia.***Congiopodus spinifer* (Smith, 1839)**

(plate VI, 47)

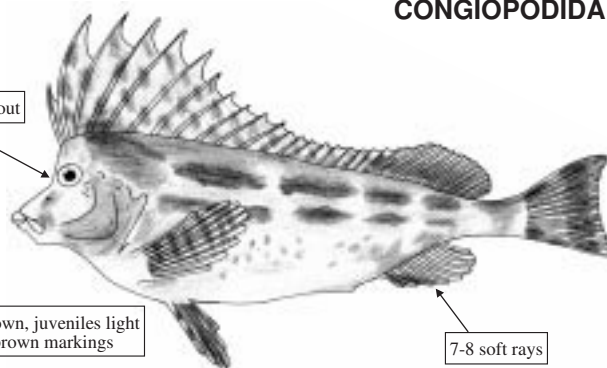
CONGIOPODIDAE**FAO names:** **En** - Spinenose horsefish;**Fr** - Cacique hérisson; **Sp** - Cacique erizado.**Local names:** Stekelneus-perdvis (Ak).**Size:** To 35 cm.**Fisheries:** Taken occasionally as bycatch in trawl fisheries.**Habitat and biology:** Found on soft bottoms at depths of about 50 to 150 m. This species periodically sheds the outer keratinous layer of its skin.

colour adults brownish with irregular light spots, juveniles light brown with irregular dark brown markings

***Congiopodus torvus* (Gronovius, 1772)****CONGIOPODIDAE****FAO names:** **En** - Smooth horsefish; **Fr** - Cacique lisse; **Sp** - Cacique liso.**Local names:** Gladde perdvis (Ak).**Size:** To 76 cm, common to 30 cm.**Fisheries:** Rarely caught in bottom trawls.**Habitat and biology:** Found on soft bottoms of the continental shelf, from nearshore to about a depth of 300 m. Mainly off the Orange River (southern Namibia).

no spines on snout

colour adults dark brown, juveniles light brown with dark brown markings



***Ectreposebastes imus* Garman 1899**

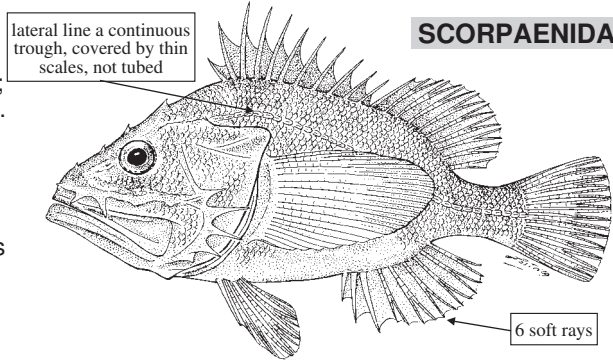
FAO names: **En** - Midwater scorpionfish; **Fr** - Rascasse profonde; **Sp** - Rascacio profundo.

Local names:

Size: To 17 cm standard length.

Fisheries: Bottom trawl.

Habitat and biology: Benthopelagic in depths between 500 and 850 m.

**SCORPAENIDAE*****Helicolenus dactylopterus* (Delaroche, 1809)**

FAO names: **En** - Blackbelly rosefish; **Fr** - Sébaste chèvre; **Sp** - Gallineta.

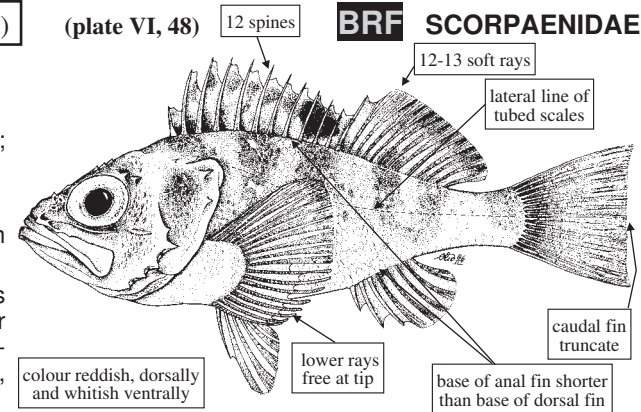
Local names: Jacopever; Jacopewer (Ak); Blaumaul (Gr).

Size: To 30 cm.

Fisheries: Commonly caught with bottom trawls as a bycatch of the hake fishery.

Habitat and biology: A demersal species found at depths of 50 to 800 m, usually deeper than 150 m. Feeds on a wide variety of organisms, including fishes, crabs, mantis shrimps, krill, and worms.

Remarks: The shape of the caudal fin and length of anal-fin base easily distinguish this species from other common "redfish" such as Afonsino (*Beryx splendens*) and Large-eye dentex (*Dentex macrophthalmus*).



(plate VI, 48)

BRF SCORPAENIDAE***Neomerinthe folgori* (Postel and Roux, 1964)**

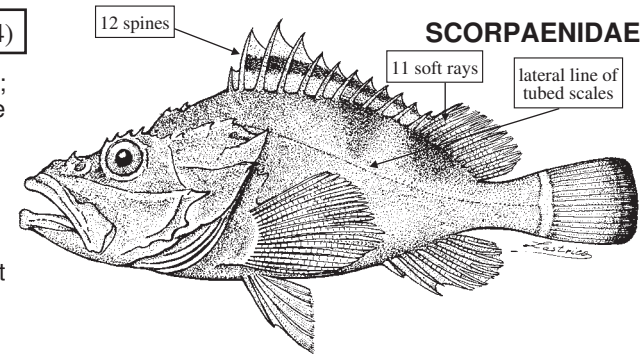
FAO names: **En** - Folgor's scorpionfish; **Fr** - Rascasse de Folgor; **Sp** - Rascacio de Folgor.

Local names:

Size: To 40 cm.

Fisheries: None at present.

Habitat and biology: A demersal species, at depths of 180 to 310 m.

**SCORPAENIDAE*****Pontinus leda* Eschmeyer, 1969**

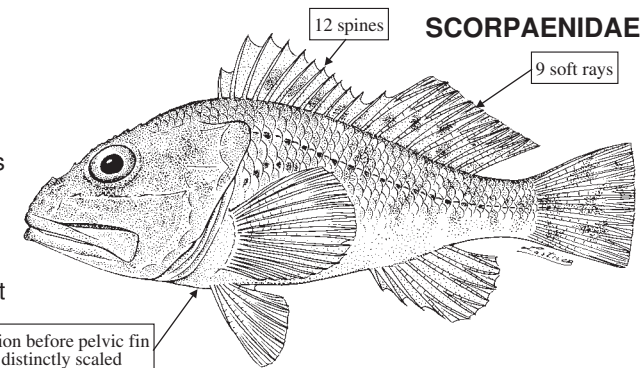
FAO names: **En** - Speckled deepwater scorpionfish; **Fr** - Rascasse tachetée; **Sp** - Rascacio rosado.

Local names: Gespikkelde diepwater-skerpioenvis (Ak).

Size: To about 27 cm.

Fisheries: None at present.

Habitat and biology: A demersal species, at depths between 100 and 400 m.

**SCORPAENIDAE**

***Scorpaena elongata* Cadenat, 1943**

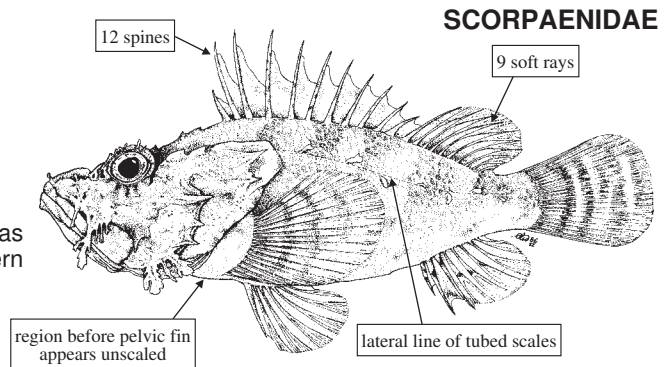
FAO names: **En** - Slender rockfish; **Fr** - Rascasse rose; **Sp** - Gallineta rosada.

Local names:

Size: To about 50 cm.

Fisheries: None at present.

Habitat and biology: Demersal in rocky areas at depths between 100 and 600 m. Off northern Namibia.

**SCORPAENIDAE*****Setarches guentheri* Johnson, 1862**

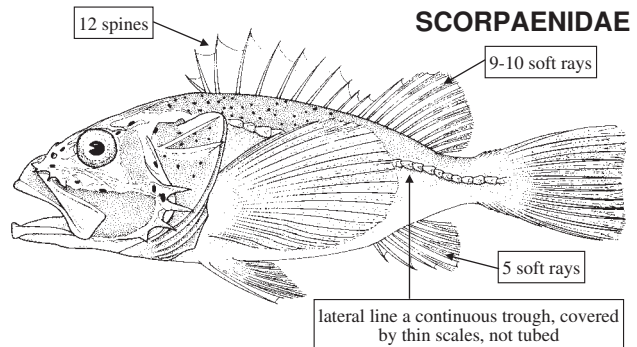
FAO names: **En** - Deepwater scorpionfish; **Fr** - Rascasse serran; **Sp** - Rascacio serrano.

Local names:

Size: To 23 cm.

Fisheries: None at present.

Habitat and biology: A demersal species of the upper continental slope.

**SCORPAENIDAE*****Trachyscorpia capensis* (Gilchrist and Von Bonde, 1924)**

FAO names: **En** - Cape rockfish; **Fr** - Rascasse du Cap; **Sp** - Rascacio del Cabo.

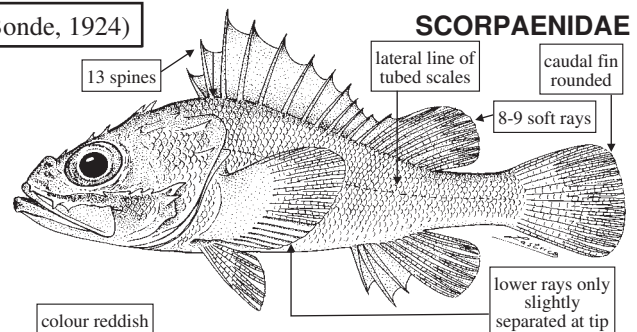
Local names: Cape scorpionfish; Kaapse skerpioenvis (Ak).

Size: To about 35 cm.

Fisheries: Caught occasionally in bottom trawls, a bycatch of the deep-water fishery.

Habitat and biology: Demersal at depths between 450 and 1 025 m.

Remarks: Superficially, this species can be confused with the Jacopever, *Helicolenus dactylopterus*. However, they can be easily distinguished by shape of caudal fin, number of rays in dorsal fin, and by pectoral-fin shape.

**SCORPAENIDAE*****Chelidonichthys capensis* (Cuvier, 1829)**

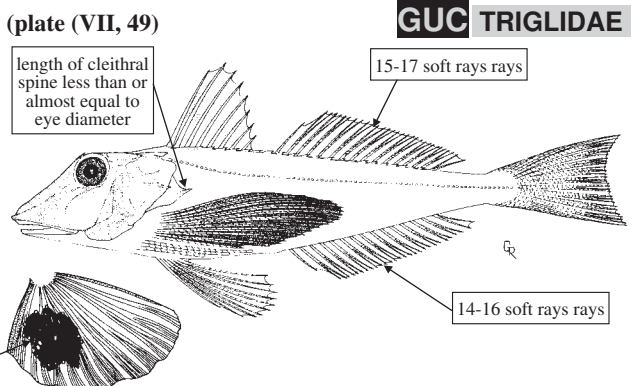
FAO names: **En** - Cape gurnard; **Fr** - Grondin du Cap; **Sp** - Rubio del Cabo.

Local names: Kaapse knorhaan (Ak); Kap-Knurrhahn (Gr).

Size: To 75 cm.

Fisheries: Caught mainly in bottom trawls and occasionally by shore anglers.

Habitat and biology: On the continental shelf, from shallow depths to 390 m. Feeds mainly on fishes and crabs.

**GUC TRIGLIDAE**

***Chelidonichthys queketti* (Regan, 1904)**

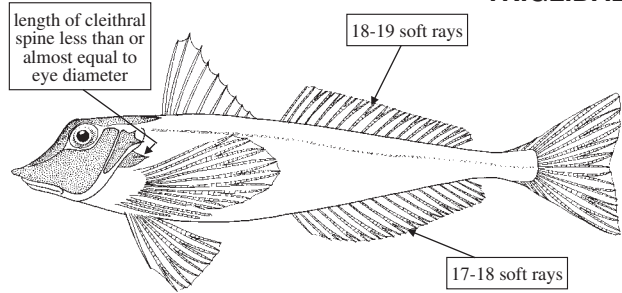
FAO names: **En** - Lesser gurnard; **Fr** - Grondin mineur; **Sp** - Rubio menor.

Local names: Kleiner knorhaan (Ak).

Size: To about 35 cm.

Fisheries: Caught occasionally in bottom trawls.

Habitat and biology: A demersal species, found in shallow water to depths of 150 m.

**TRIGLIDAE*****Trigla lyra* Linnaeus, 1758**

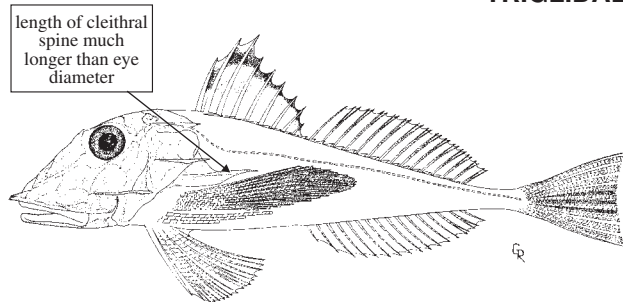
FAO names: **En** - Piper gurnard; **Fr** - Grondin lyre; **Sp** - Garneo.

Local names: Lyre gurnard; Lieer-knorhaan (Ak); Leierhahn, Leierknurrhahn, Pfeifenfisch (Gr).

Size: To 60 cm.

Fisheries: Caught occasionally in bottom trawls.

Habitat and biology: On sandy as well as on muddy bottoms, from depths of 10 to 400 m. Mainly off northern Namibia.

**TRIGLIDAE*****Synagrops microlepis* Norman, 1935**

(plate VII, 50)

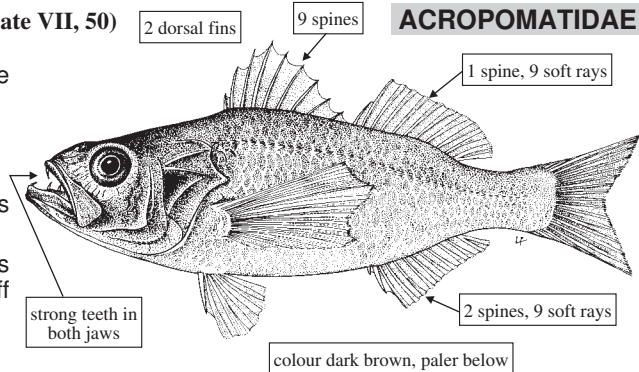
FAO names: **En** - Thinlip splitfin; **Fr** - Maconde lèvres mince; **Sp** - Dentiño.

Local names:

Size: To about 16 cm.

Fisheries: Commonly caught in bottom trawls at depths usually greater than 200 m.

Habitat and biology: A bathypelagic species recorded from depths of 50 to 450 m. Mainly off northern Namibia.

**ACROPOMATIDAE*****Polyprion americanus* (Schneider, 1801)**

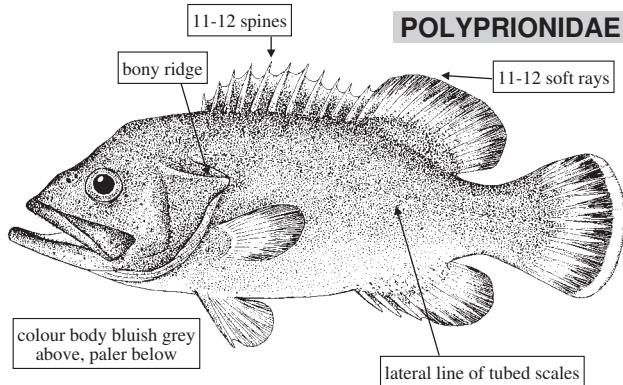
FAO names: **En** - Wreckfish; **Fr** - Cernier commun; **Sp** - Cherna.

Local names: Wrakvis (Ak); Atlantischer Wrackbarsch, Wrackbarsch (Gr).

Size: Maximum 200 cm, common to 80 cm.

Fisheries: Rarely caught in bottom trawls.

Habitat and biology: Occurs in depths of 100 to 200 m, preferring caves and shipwrecks; juveniles congregate below floating objects, adults are mainly demersal. Feeds on bottom-living fish, large crustaceans, and cephalopods. Only off southern Namibia.

**POLYPRIONIDAE**

Remarks: Formerly included in the family Serranidae and sometimes included in the Acropomatidae.

***Acanthistius sebastoides* (Castelnau, 1861)**

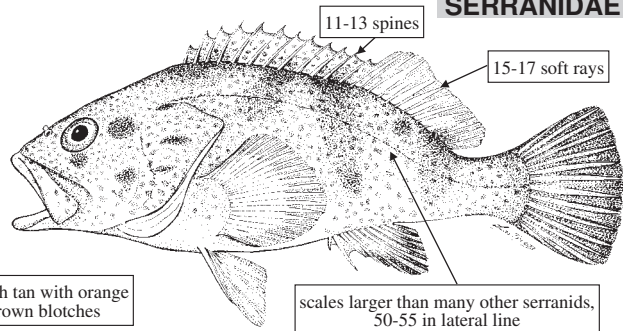
FAO names: En - Koester; Fr - Koester; Sp - Koester.

Local names:

Size: To 35 cm.

Fisheries: None at present.

Habitat and biology: On rocky bottoms, from depths of 1 to 20 m.

**SERRANIDAE*****Anthias anthias* (Linnaeus, 1758)**

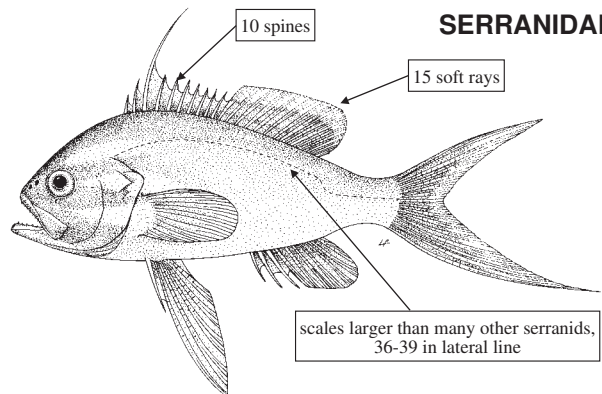
FAO names: En - Swallowtail seaperch; Fr - Barbier hirondelle; Sp - Tres colas.

Local names: Roter Fahnenbarsch, Rötling (Gr).

Size: To about 27 cm.

Fisheries: Rarely in trawls.

Habitat and biology: Inhabits rocky areas from shallow depths to about 300 m. Recorded from northern Namibia, mainly at a depth of 150 m.

**SERRANIDAE*****Epinephelus marginatus* (Lowe, 1834)**

Synonym: Previously referred to as *Epinephelus guaza* (non Linnaeus, 1758).

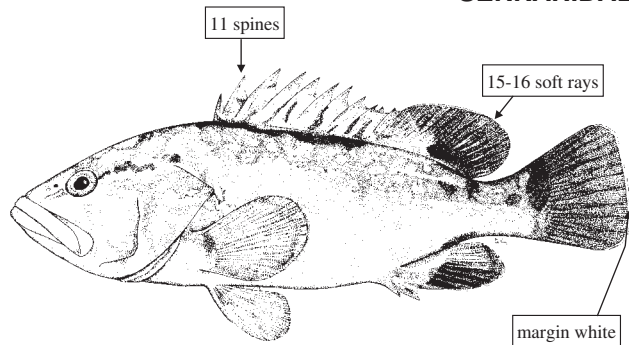
FAO names: En - Dusky grouper; Fr - Mérout noir; Sp - Mero moreno.

Local names: Yellowbelly rockcod; Geelpens-klipkabeljou (Ak); Brauner Zachenbarsch, Riesen-Zachenbarsch (Gr).

Size: Maximum about 120 cm.

Fisheries: None at present.

Habitat and biology: Prefers mostly rocky bottoms in shallow water to a depth of 150 m.

**SERRANIDAE*****Serranus cabrilla* (Linnaeus, 1758)**

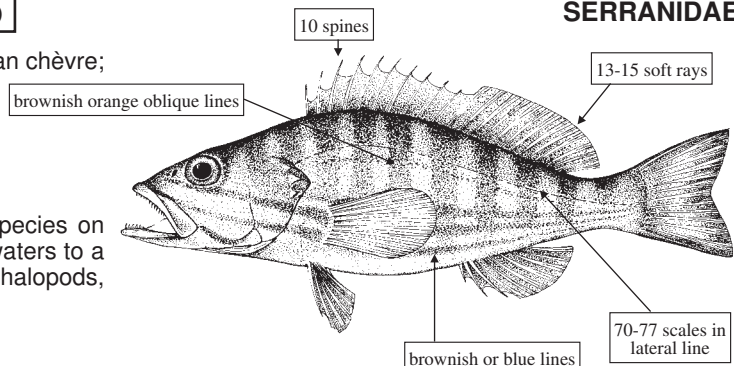
FAO names: En - Comber; Fr - Serran chèvre; Sp - Cabrilla.

Local names: Kammer (Ak).

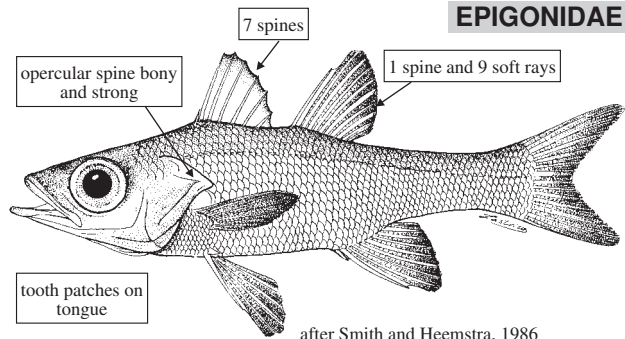
Size: To 40 cm, common to 25 cm.

Fisheries: None at present.

Habitat and biology: A demersal species on soft or rocky bottoms, from shallow waters to a depth of 450 m. Feeds on fishes, cephalopods, and crustaceans.

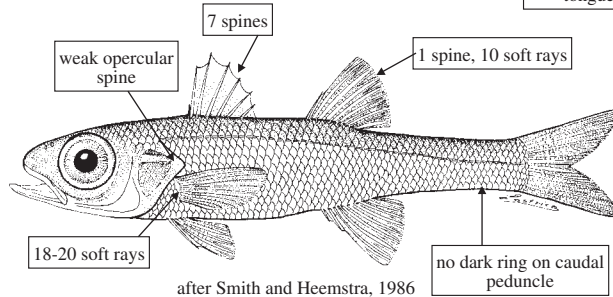
**SERRANIDAE**

EPIGONIDAE



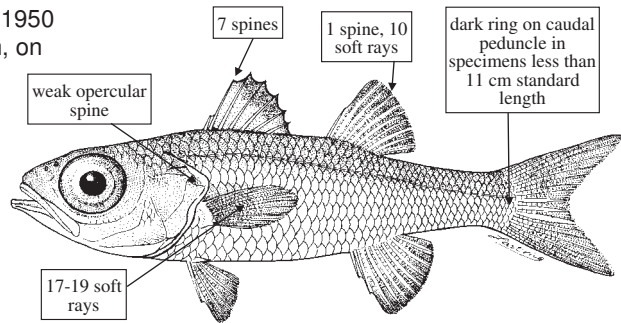
after Smith and Heemstra, 1986

Epigonus constanciae (Giglioli, 1880)
To 16 cm; depth range 200-600 m.



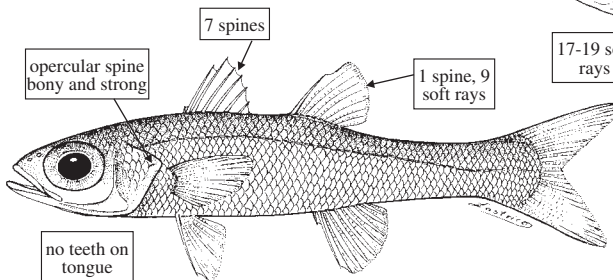
after Smith and Heemstra, 1986

Epigonus denticulatus Dieuzeide, 1950
To 20 cm; depth range 200-800 m, on
soft bottoms.



after Smith and Heemstra, 1986

Epigonus pandionis (Goode and Bean, 1881)
To 16 cm; depth range 200-600 m.
(plate VII, 51)



Epigonus robustus (Barnard, 1927)
To 20 cm; depth range 800-1 200 m.

Epigonus telescopus (Risso, 1810)

(plate XI, 87)

EPIGONIDAE

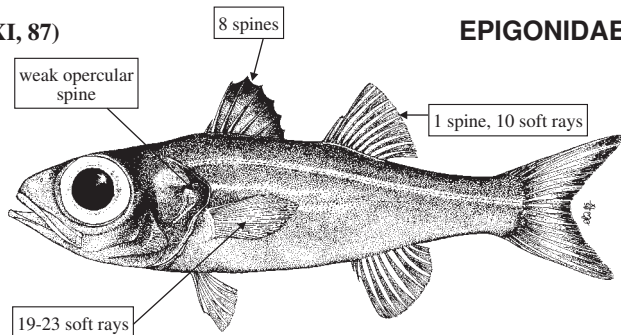
FAO names: En - Telescope cardinal.

Local names: Teleskoop-kardinaal (Ak);
Teleskop-Kardinalfisch (Gr).

Size: 60 cm.

Fisheries: Sometimes caught in large quantities by trawl. A bycatch of the deep-water fishery.

Habitat and biology: Demersal on soft bottoms at depths between 80 and 1 200 m.



Pomatomus saltatrix* (Linnaeus, 1766)*POMATOMIDAE**

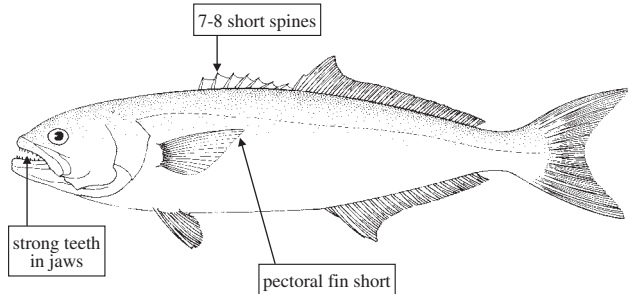
FAO names: **En** - Bluefish; **Fr** - Tassergal;
Sp - Anchova de banco.

Local names: Elf; Elf (Ak); Blaubarsch, Blaufisch (Gr).

Size: To 110 cm.

Fisheries: Caught by shore anglers and gill nets in Lüderitz lagoon. A bycatch of the swordfish fishery.

Habitat and biology: A voracious and swift predator, the young hunting in schools.

***Rachycentron canadum* (Linnaeus, 1766)****RACHYCENTRIDAE**

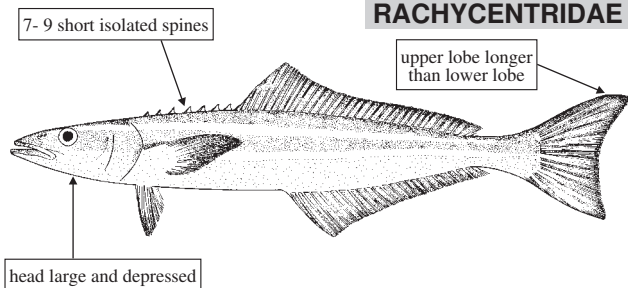
FAO names: **En** - Cobia; **Fr** - Mafou; **Sp** - Cobia.

Local names: Prodigal son; Kobia (Ak); Königsbarsch (Gr).

Size: To 200 cm (50 kg).

Fisheries: None at present.

Habitat and biology: Pelagic, but also found off rocky shores. Feeds on crabs, squids, and fishes.

***Chloroscombrus chrysurus* (Linnaeus, 1776)****CARANGIDAE**

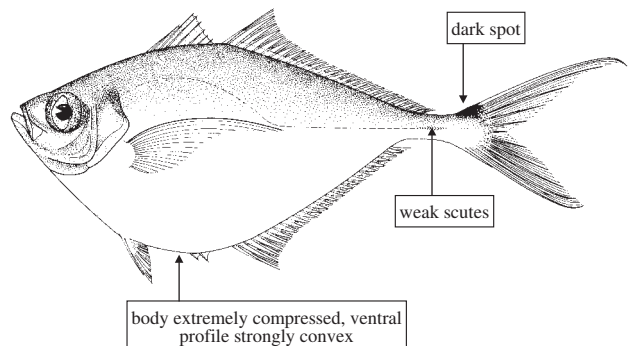
FAO names: **En** - Atlantic bumper; **Fr** - Sapater;
Sp - Casabe.

Local names: Atlantiese stamper (Ak); Schwanzfleck-Stachelmakrele (Gr).

Size: Maximum: 65 cm but common to 25 cm.

Fisheries: Rarely caught in trawls.

Habitat and biology: A shoaling pelagic species occurring in shallow coastal waters, including lagoons and brackish waters. In Namibia, found only in the north.

***Decapterus punctatus* (Cuvier, 1829)****CARANGIDAE**

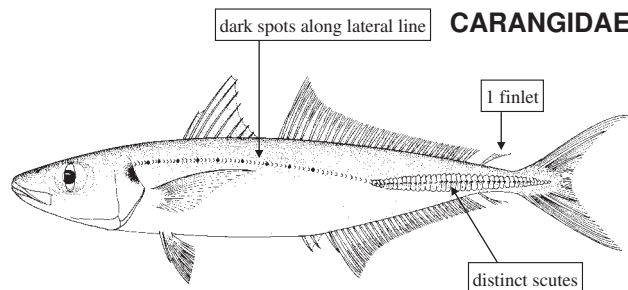
FAO names: **En** - Round scad; **Fr** - Comète quiaquia; **Sp** - Macarela chuparaco.

Local names: Ronde skad (Ak); Gefleckte Stachelmakrele (Gr).

Size: To 25 cm.

Fisheries: Caught occasionally in trawls.

Habitat and biology: A shoaling species, usually near the bottom, to a depth of 100 m. Feeds on small pelagic invertebrates.



Lichia amia* (Linnaeus, 1758)*CARANGIDAE**

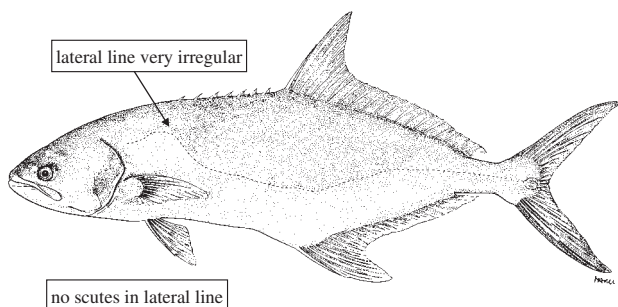
FAO names: **En** - Leerfish; **Fr** - Liche;
Sp - Palometón.

Local names: Garrick; Leervis (Ak); Große Gabelmakrele (Gr).

Size: Attains 1.8 m.

Fisheries: Caught by shore anglers and occasionally in trawls and purse seines. Esteemed as a game fish in South Africa.

Habitat and biology: An inshore or estuarine species found from the surface to a depth of 50 m. Feeds mainly on bony fishes. Sexual maturity is reached at a length of about 60 cm (fork length). Found in northern Namibia; common at Kunene River mouth.

***Selene dorsalis* (Gill, 1863)****CARANGIDAE**

Synonyms: *Vomer setapinnis* (Mitchill, 1815).

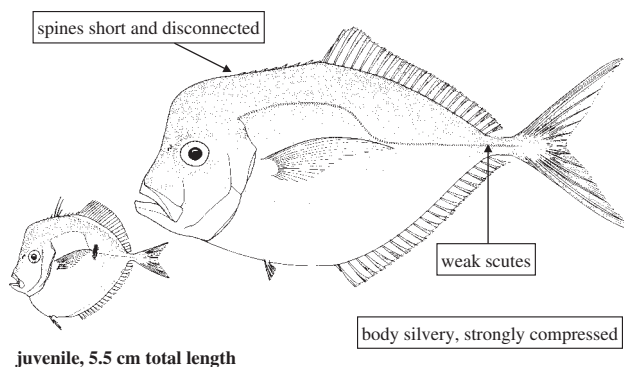
FAO names: **En** - African moonfish; **Fr** - Musso africain; **Sp** - Jorobado africano.

Local names: Lookdown fish; Afkykvis (Ak); Afrikanischer Pferdekopf (Gr).

Size: To 33 cm.

Fisheries: None at present.

Habitat and biology: A coastal species, to a depth of 60 m. Found mainly in the north.

***Seriola lalandi* Valenciennes, 1833****CARANGIDAE**

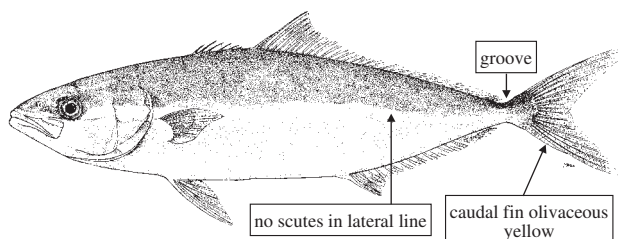
FAO names: **En** - Yellowtail amberjack; **Fr** - Sériole chinchard; **Sp** - Medregal rabo amarillo.

Local names: Giant yellowtail; Reuse geelstert (Ak); Australische, Gelbschwanzmakrele (Gr).

Size: To at least 150 cm.

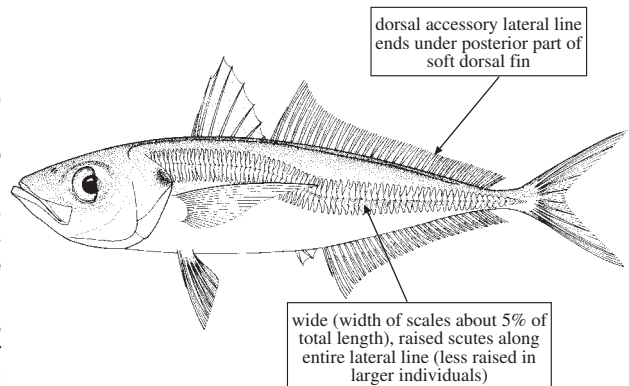
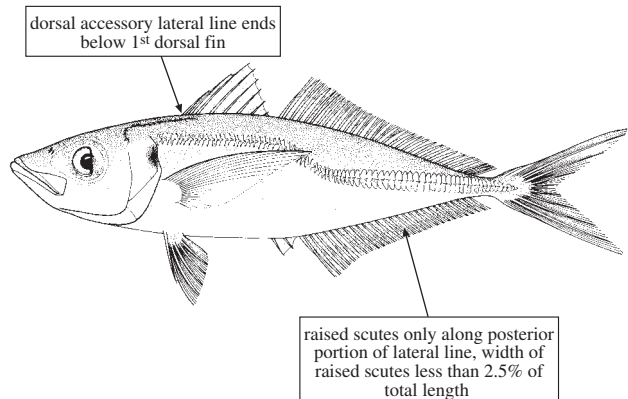
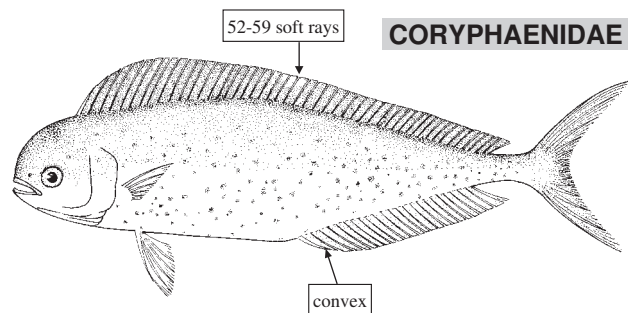
Fisheries: Caught in pelagic and bottom trawls and rarely by shore anglers. Considered as an excellent sportfish in South Africa.

Habitat and biology: Adults are pelagic or epibenthic in coastal waters (to 50 m depth). Feeds on small fish, squids, and crustaceans.



***Trachurus capensis* (Linnaeus, 1758)**

(plate VII, 52)

HMC CARANGIDAE**Synonyms:** *Trachurus trachurus* Castelnau, 1861.**FAO names:** **En** - Cape horse mackerel;
Fr - Chinchard du Cap; **Sp** - Jurel del Cabo.**Local names:** Maasbanker (Ak); Bastardmakrele, Kap-Bastardmakrele, Stöcker (Gr).**Size:** To 60 fork length. Common between 15 and 30 cm.**Fisheries:** Caught with purse seines, and pelagic and bottom trawls. An important commercial species in both the trawl and purse-seine industries.**Habitat and biology:** A schooling species mainly over the continental shelf, often over sand bottoms, observed at the surface as well as down to a depth of 400 m; shoals rise to feed in surface waters at night while they are close to the bottom during daytime. An opportunist feeder, copepods are an important prey of juveniles, while adults feed on a wide range of invertebrates and fish (gobies and mesopelagic fish). Sexual maturity attained at 3 years (length of around 20 cm).***Trachurus trecae* Cadenat, 1949****HMZ** CARANGIDAE**FAO names:** **En** - Cunene horse mackerel;
Fr - Chinchard cunène; **Sp** - Jurel cunene.**Local names:** Cunene-Bastardmakrele (Gr).**Size:** At least to 35 cm fork length.**Fisheries:** This horse mackerel rarely occurs in fisheries of Namibia as it is only found in the extreme north.**Habitat and biology:** Usually occurs near the bottom at depths between 20 and 100 m, but also pelagic near the surface. Feeds primarily on crustaceans. Occasionally found in northern Namibia although it usually only occurs as far south as Angola.***Coryphaena equiselis* Linnaeus, 1758****CORYPHAENIDAE****FAO names:** **En** - Pompano dolphinfish;
Fr - Coryphène dauphin; **Sp** - Dorado.**Local names:** Pompano-dorade (Ak).**Size:** To 75 cm.**Fisheries:** None at present.**Habitat and biology:** Pelagic, mainly in open waters, but approaching the coast at times; follows ships and concentrates under floating objects.

***Coryphaena hippurus* Linnaeus, 1758**

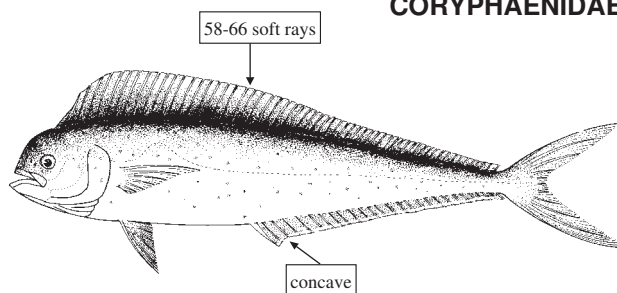
FAO names: **En** - Common dolphinfish; **Fr** - Coryphène commune; **Sp** - Dorado común.

Local names: Dolphinfish; Dorade (Ak); Gemeine Goldmakrele, Goldmakrele (Gr).

Size: Maximum 200 cm, common to 100 cm.

Fisheries: None at present.

Habitat and biology: Pelagic, inhabits open waters but sometimes approaching the coast; follows ships and forms small concentrations under floating objects. Feeds on fishes, crustaceans, and squid. Breeds in the open sea.

**CORYPHAENIDAE*****Brama brama* (Bonnaterre, 1788)**

(plate VII, 53)

POA BRAMIDAE

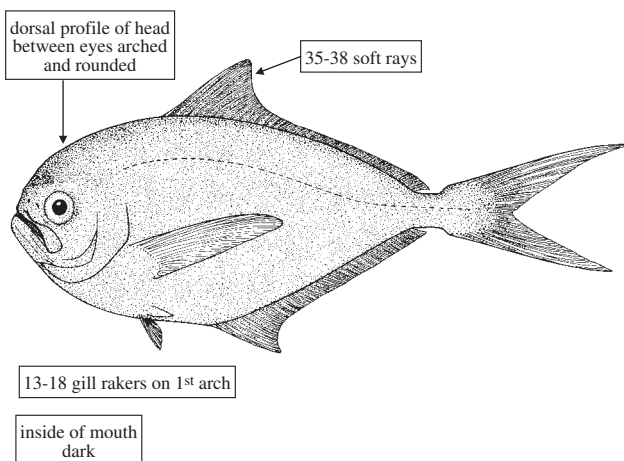
FAO names: **En** - Atlantic pomfret; **Fr** - Grande castagnole; **Sp** - Japuta.

Local names: Angelfish, Pomfret; Angelvis, Pomfret (Ak); Brachsenmakrele (Gr).

Size: To 70 cm.

Fisheries: Caught as a bycatch of midwater trawlers south of Walvis Bay, from the surface to a depth of 1 000 m. Rarely caught in bottom trawls and by the swordfish fishery, and deep-water fishery.

Habitat and biology: An oceanic and epipelagic species, also found to depths of 1 000 m, moving to shallower waters for reproduction. Preyed upon by oceanic predators such as tunas and billfishes, and in turn feeds on myctophids and other small bony fishes, euphysiids, and cephalopods.

***Taractes rubescens* (Jordan and Evermann, 1887)**

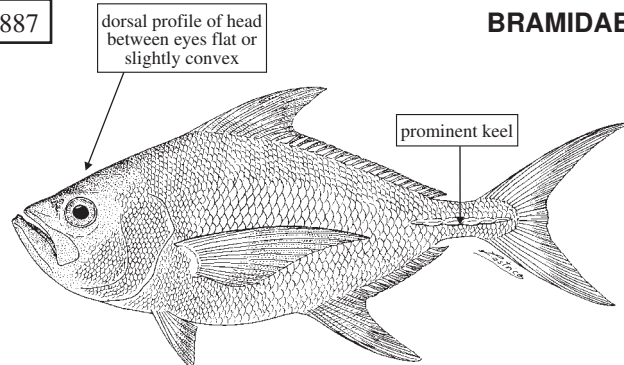
FAO names: **En** - Dark pomfret; **Fr** - Castagnole sombre; **Sp** - Palometa negra.

Local names:

Size: To about 70 cm.

Fisheries: Caught occasionally in trawls. A bycatch of the deep-water fishery.

Habitat and biology: Mesopelagic from shallow depths to about 400 m.

**BRAMIDAE**

***Taractichthys longipinnis* (Lowe, 1843)**

FAO names: **En** - Bigscale pomfret;
Fr - Castagnole fauchoir; **Sp** - Cangullo.

Local names: Grootskub-pomfret (Ak).

Size: To 100 cm.

Fisheries: Caught occasionally with trawls. A bycatch of the deep-water fishery.

Habitat and biology: Oceanic and epipelagic.

dorsal profile of head between eyes arched and rounded

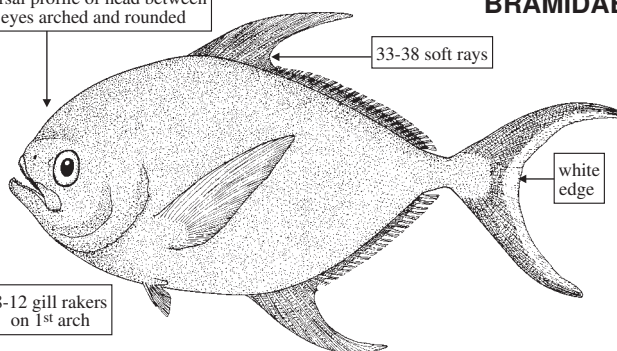
BRAMIDAE

inside of mouth without pigment

8-12 gill rakers on 1st arch

33-38 soft rays

white edge

***Emmelichthys nitidus nitidus* Richardson, 1845**

(plate VII, 54)

EMMELICHTHYIDAE

FAO names: **En** - Cape bonnetmouth;
Fr - Andorrè du Cap; **Sp** - Cardenal.

Local names: Southern rover; Suidelike rondloper (Ak).

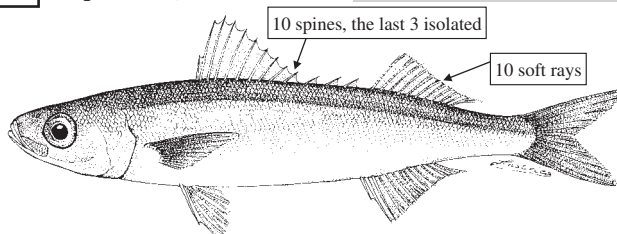
Size: To 50 cm.

Fisheries: Taken in bottom trawls between 100 and 200 m.

Habitat and biology: The young occur near the surface, often with schools of clupeids; adults occur near the bottom between depths of 100 and 450 m, mainly on the deeper part of the continental shelf. Feeds on large zooplankton.

10 spines, the last 3 isolated

10 soft rays

***Pomadasys jubelini* (Cuvier, 1830)**

FAO names: **En** - Sompat grunt; **Fr** - Grondeur sompat; **Sp** - Ronco sompat.

Local names: Atlantic spotted grunter; Atlantiese gespikkelde knorder (Ak); Sompat-Sußlippe (Gr).

Size: To 60 cm.

Fisheries: Caught occasionally by shore anglers. More abundant in the north.

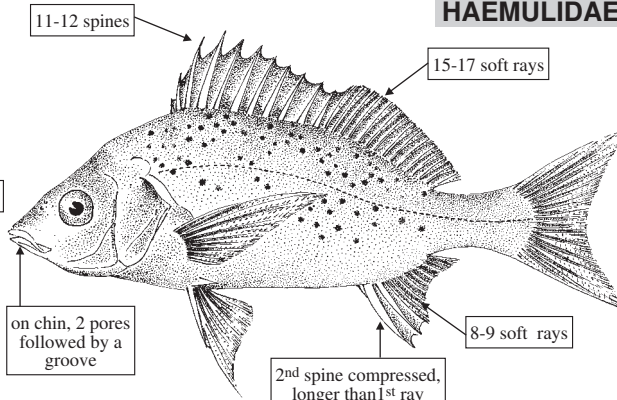
Habitat and biology: Inhabits coastal waters to a depth of 100 m, most common between 25 and 50 m. Feeds on crustaceans, molluscs, and worms.

11-12 spines

HAEMULIDAE

15-17 soft rays

body with spots on upper sides



on chin, 2 pores followed by a groove

2nd spine compressed, longer than 1st ray

8-9 soft rays

***Pomadasys olivaceum* (Day, 1875)**

FAO names: **En** - Olive grunt; **Fr** - Goret olive; **Sp** - Corocoro aceituna.

Local names: Piggy; Varkie (Ak).

Size: To 31 cm.

Fisheries: Caught occasionally by shore anglers.

Habitat and biology: In coastal waters. Feeds mostly on small crustaceans.

12 spines

HAEMULIDAE

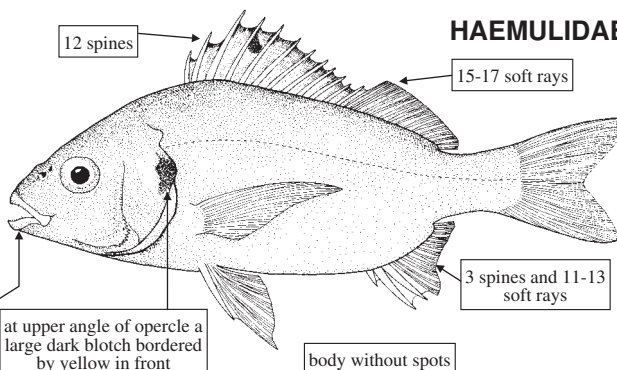
15-17 soft rays

on chin, 2 pores followed by a pit

at upper angle of opercle a large dark blotch bordered by yellow in front

body without spots

3 spines and 11-13 soft rays



***Chrysoblephus laticeps* (Valenciennes 1830)**

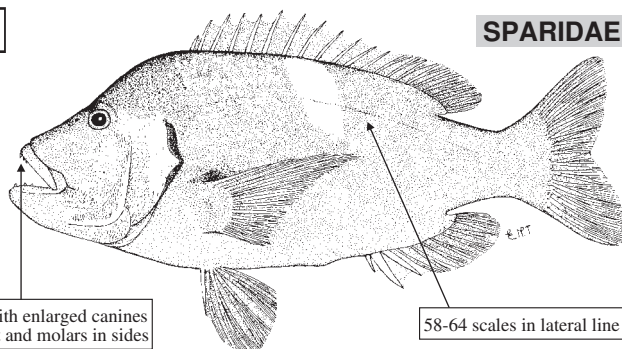
FAO names: **En** - Roman seabream; **Fr** - Spare à selle blanche; **Sp** - Sargo montura blanca.

Local names: Roman; Roman (Ak).

Size: To 50 cm.

Fisheries: Very rare in Namibia.

Habitat and biology: Occurs mostly over rocky bottoms in deep water to depths of 100 m.



body colour usually reddish orange, sometimes bluish, blotches whitish

jaws with enlarged canines in front and molars in sides

58-64 scales in lateral line

SPARIDAE***Dentex barnardi* Cadenat, 1970**

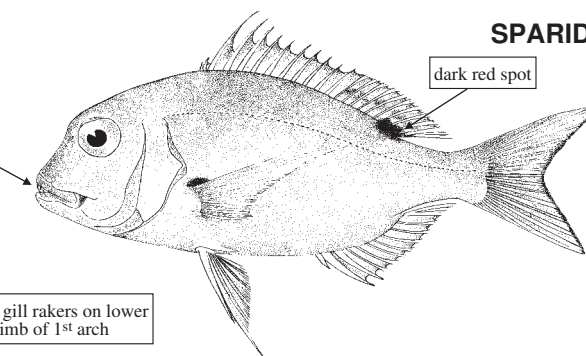
FAO names: **En** - Barnard's dentex; **Fr** - Denté austral; **Sp** - Chacarona sureña.

Local names:

Size: To 40 cm.

Fisheries: None at present.

Habitat and biology: Benthopelagic on soft bottoms in depths between 40 and 100 m. Only in northern Namibia.



jaws with enlarged canines in front and smaller conical teeth in sides, no molars

14-16 gill rakers on lower limb of 1st arch

body colour bright red

SPARIDAE***Dentex macrophthalmus* (Bloch, 1791) (plate VII, 55)**

FAO names: **En** - Large-eye dentex; **Fr** - Denté à gros yeux; **Sp** - Cachucho.

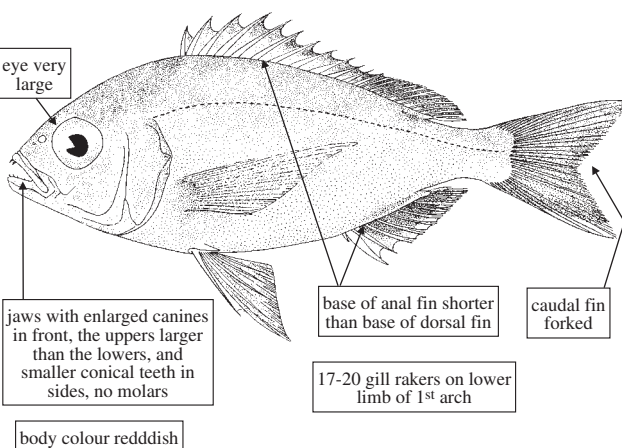
Local names: Grootoog-denteks (Ak); Großaugenzahnbrasse (Gr).

Size: To 65 cm.

Fisheries: Caught occasionally with bottom trawls as a bycatch of the hake fishery, and as a bycatch of midwater trawlers.

Habitat and biology: On rocky and sandy bottoms, from depths of 30 to 500 m. Inshore to off-shore migrations occur seasonally in connection with spawning. Mainly off northern Namibia, where this species is very abundant.

Remarks: The shape of the caudal fin and length of anal-fin base easily distinguish this species from other common "redfish" such as the Alfonsino (*Beryx splendens*) and the Jacopever (*Helicolenus dactylopterus*).



eye very large

jaws with enlarged canines in front, the uppers larger than the lowers, and smaller conical teeth in sides, no molars

body colour reddish

base of anal fin shorter than base of dorsal fin

17-20 gill rakers on lower limb of 1st arch

caudal fin forked

DEL SPARIDAE

***Diplodus sargus capensis* (Smith, 1844)**

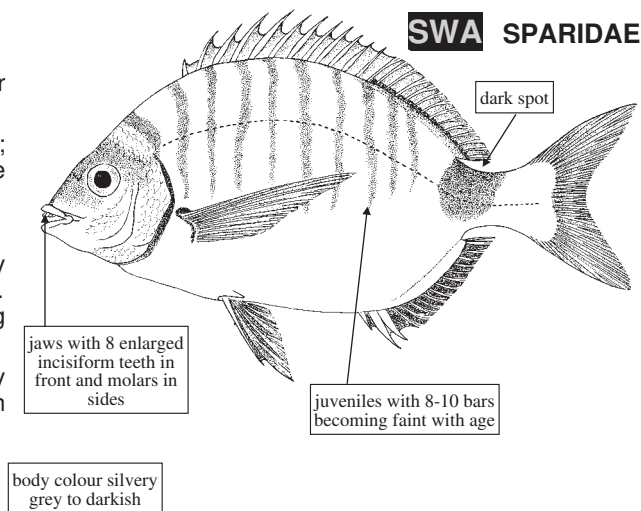
FAO names: **En** - White seabream; **Fr** - Sar commun du Cap; **Sp** - Sargo del Cabo.

Local names: Blacktail; Dassie, Kolstert (Ak); Bindenbrasse, Geißbrasse, Große Geißbrasse (Gr).

Size: To over 40 cm.

Fisheries: Caught mainly with line gear by shore anglers and commercially from ski-boats. One of 4 most important recreational angling fishes.

Habitat and biology: A coastal species usually on rocky grounds to a depth of 50 m. Feeds on seaweeds and benthic invertebrates.

**SWA SPARIDAE*****Lithognathus aureti* Smith, 1962**

head length short, usually shorter than pectoral fins (about equal in juveniles)

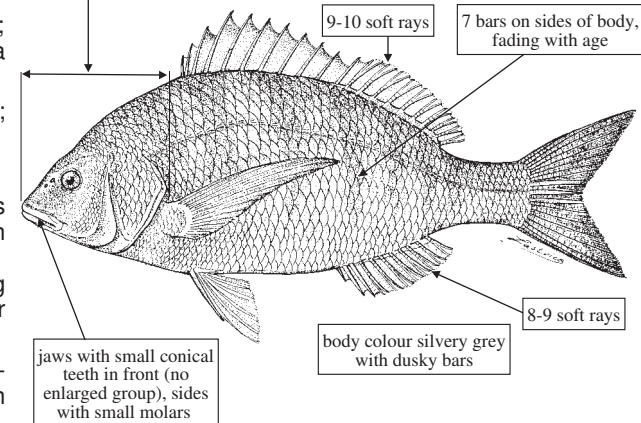
FAO names: **En** - West coast seabream; **Fr** - Marbré de la côte ouest; **Sp** - Herrera de la costa oeste.

Local names: Westcoast steenbras; Weskus-steenbras (Ak).

Size: To 100 cm.

Fisheries: Caught commonly by shore anglers and commercially by ski-boats and linefish boats. Occasionally caught in purse seines. One of 4 most important recreational angling fishes. Most commonly fished between October and March.

Habitat and biology: A gregarious coastal species, usually over sandy seabeds. Feeds on burrowing invertebrates, such as sand mussels, worms, and crabs.

**SBW SPARIDAE*****Lithognathus lithognathus* (Cuvier, 1830)**

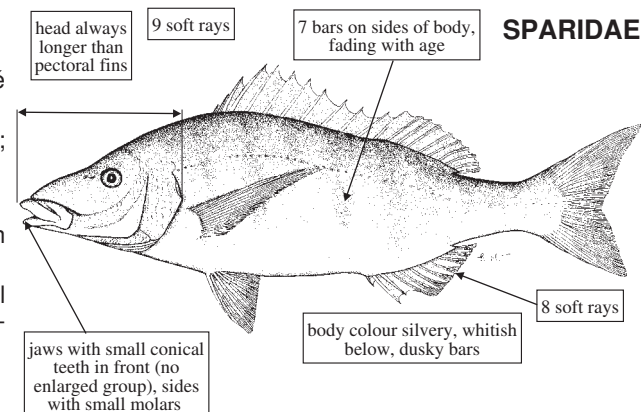
FAO names: **En** - White steenbras; **Fr** - Marbré du Cap; **Sp** - Herrera del Cabo.

Local names: Witsteenbras (Ak); Südafrikanische, Marmorbrasse (Gr).

Size: To over 100 cm.

Fisheries: Rarely caught by shore anglers in Lüderitz and the south.

Habitat and biology: Found in shallow coastal waters and estuaries. Feeds on bottom invertebrates, including worms, crabs, and shrimps.

**SPARIDAE**

***Lithognathus mormyrus* (Linnaeus, 1758)**

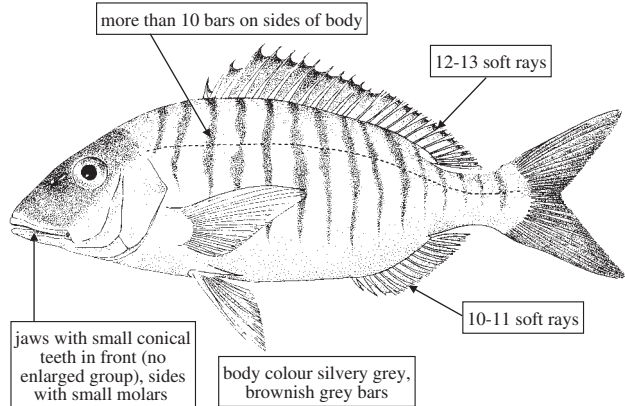
FAO names: **En** - Striped seabream; **Fr** - Marbré; **Sp** - Herrera.

Local names: Sand steenbras; Sandsteenbras (Ak); Marmorbrasse (Gr).

Size: To 55 cm.

Fisheries: Caught on line gear, and with bottom trawls. Very rarely caught in Namibia.

Habitat and biology: Lives over sandy bottoms and seagrass beds, from shallow coastal waters to a depth of 150 m; sometimes in estuaries. Feeds on small, bottom-living invertebrates (worms, molluscs, and crustaceans).

**SPARIDAE*****Pachymetopon blochii* (Valenciennes, 1830)**

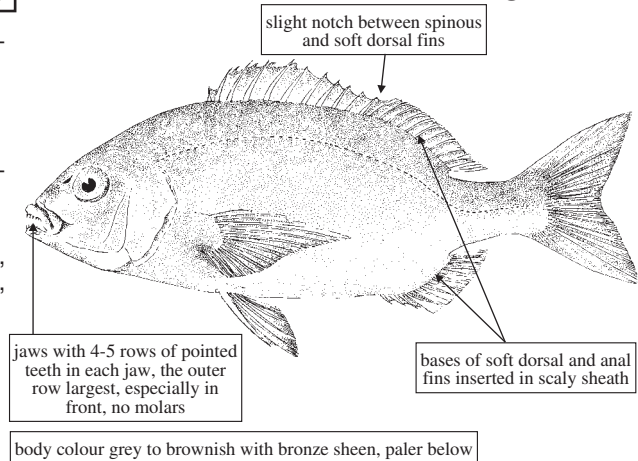
FAO names: **En** - Hottentot seabream; **Fr** - Hottentot; **Sp** - Sargo hottentote.

Local names: Hottentot; Hottentot (Ak).

Size: To 45 cm.

Fisheries: Caught occasionally by shore anglers and from ski-boats in the Lüderitz area. Rare in the central region.

Habitat and biology: Inhabits coastal waters, on rocky bottoms. Feeds on seaweeds, crabs, amphipods, shrimps, and polychaete worms.

**SPARIDAE*****Pagrus auriga* Valenciennes, 1843**

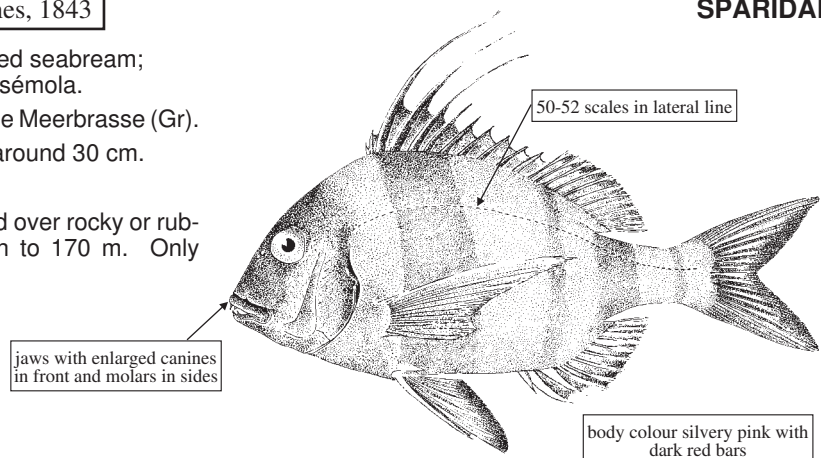
FAO names: **En** - Redbanded seabream; **Fr** - Pagre rayé; **Sp** - Pargo sémola.

Local names: Rötgebänderte Meerbrasse (Gr).

Size: To 60 cm, commonly around 30 cm.

Fisheries: None at present.

Habitat and biology: Found over rocky or rubble bottoms in depths down to 170 m. Only found in northern Namibia.

**SPARIDAE**

***Pterogymnus laniarius* (Cuvier, 1830)**

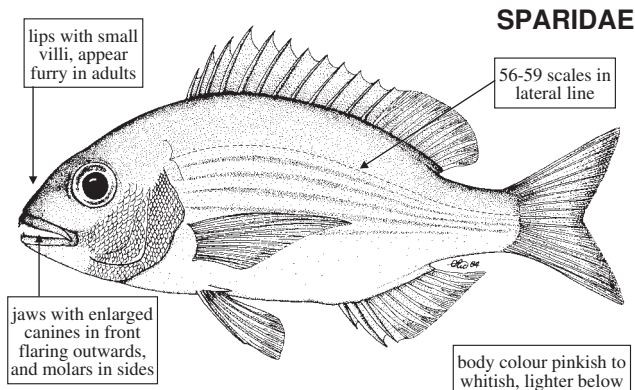
FAO names: **En** - Panga seabream; **Fr** - Spare panga; **Sp** - Sargo panga.

Local names: Panga; Panga (Ak); Panga-Meerbrasse (Gr).

Size: To 40 cm, commonly from 25 to 30 cm.

Fisheries: None at present.

Habitat and biology: Benthopelagic over soft bottoms in depths between 20 and 150 m.

***Rhabdosargus globiceps* (Cuvier, 1830)**

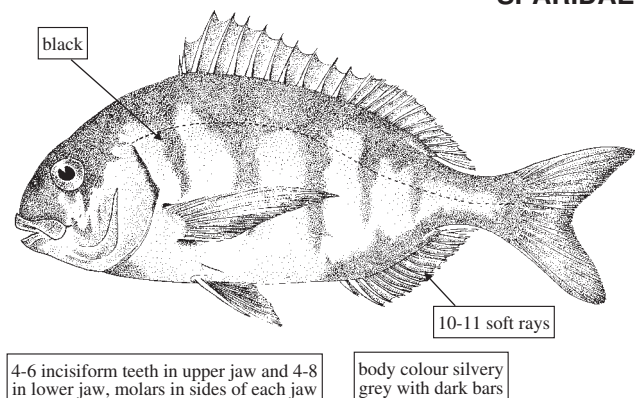
FAO names: **En** - White stumpnose; **Fr** - Sar austral; **Sp** - Pargo ñato.

Local names: Witstompneus (Ak); Weiße Stumpfnase (Gr).

Size: To 65 cm.

Fisheries: Caught by shore anglers in the Lüderitz area.

Habitat and biology: Found in inshore waters to a depth of 100 m, mainly on sandy bottoms. Spawns in spring and summer close inshore and juveniles use estuaries as nurseries.

***Sarpa salpa* (Linnaeus, 1758)**

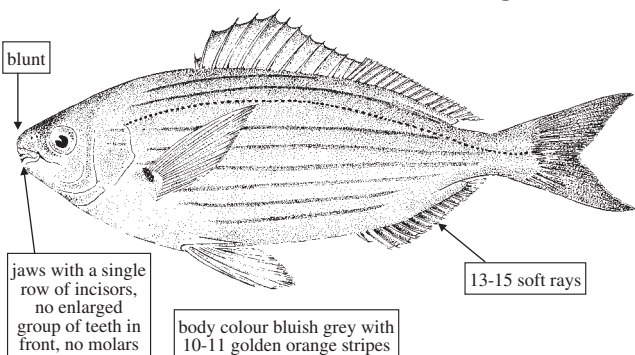
FAO names: **En** - Salema; **Fr** - Saupe; **Sp** - Salema.

Local names: Strepie; Strepie (Ak); Goldstrieme (Gr).

Size: To 45 cm.

Fisheries: Caught rarely by shore anglers and occasionally with bottom trawls in the north.

Habitat and biology: On rocky or sandy bottoms, to a depth of 70 m. Feeds mainly on seaweeds.



Spondyliosoma cantharus (Linnaeus, 1758)

FAO names: En - Black seabream; Fr - Dorade grise; Sp - Pargo chopá.

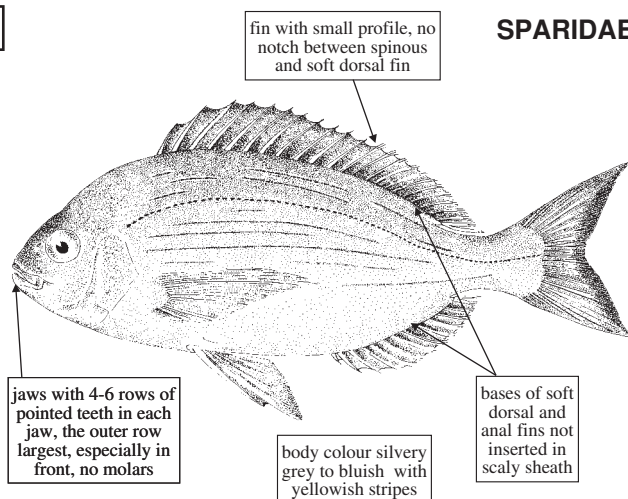
Local names:

Size: To 60 cm.

Fisheries: Caught occasionally by shore anglers. More abundant in the north.

Habitat and biology: A demersal species, on rocky and sandy bottoms. Feeds on seaweeds, small crustaceans, and other invertebrates. Found mainly in northern Namibia.

SPARIDAE



Argyrosomus coronus Griffiths and Heemstra, 1995

FAO names: En - Corona meagre.

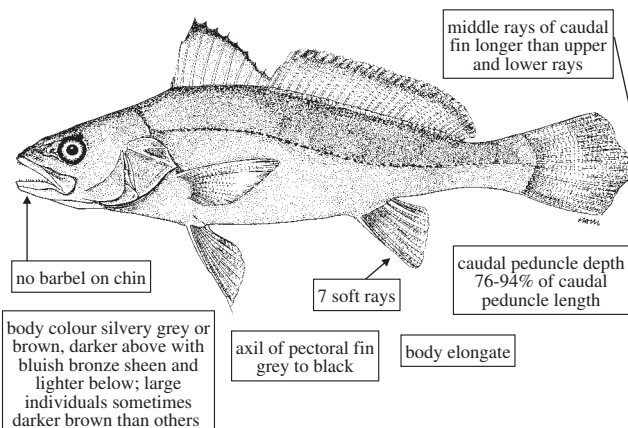
Local names: Dusky kob; Kabeljou (Ak).

Size: To 200 cm.

Fisheries: Caught mostly with handlines in fairly low numbers.

Habitat and biology: Mostly on the bottom at depths between 20 and 40 m, but also in shallow water and down to 100 m. More common in northern Namibia with large adults found mostly in Angola.

SCIAENIDAE



Argyrosomus inodorus Griffiths and Heemstra, 1995

FAO names: En - Mild meagre.

Local names: Silver kob; Kabeljou (Ak).

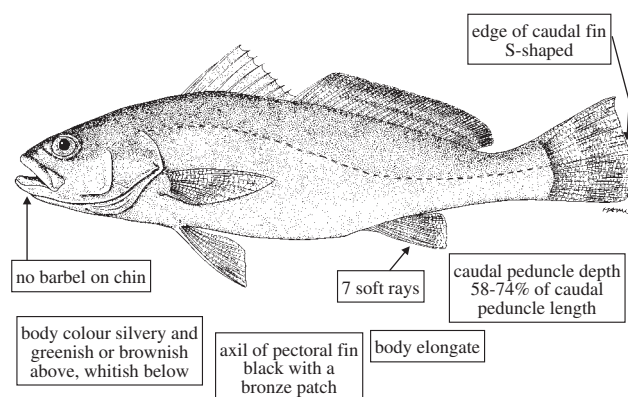
Size: To 130 cm, commonly to 115 cm.

Fisheries: Caught in large numbers by line-boat fishermen and anglers; also caught by trawls. Most important of the recreational angling fishes.

Habitat and biology: In Namibia, typically close to shore in depths less than 20 m. Less common in northern Namibia. Feeds mostly on shrimp and small fish.

Remarks: Previously reported as *Argyrosomus hololepidotus*.

SCIAENIDAE



***Atractoscion aequidens* (Cuvier, 1830)**

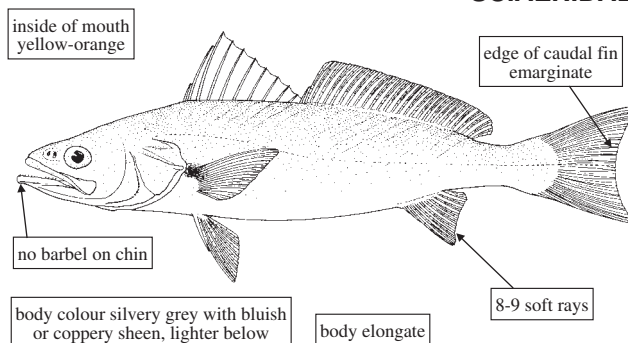
FAO names: **En** - African weakfish;
Fr - Téraclin; **Sp** - Corvinata prieta.

Local names: Cape salmon, Geelbek;
Geelbek (Ak); Afrikanischer Umberfisch (Gr).

Size: To 120 cm, common to 50 cm.

Fisheries: Caught occasionally with bottom trawls and by shore anglers, mainly in the north.

Habitat and biology: Inhabits mud and sandy bottoms in coastal waters, from depths of 15 to 200 m, most abundant between 100 and 200 m. Although mainly demersal, feeds also on pelagic fish such as mackerel and horse mackerel.

**SCIAENIDAE*****Pteroscion peli* (Bleeker, 1863)**

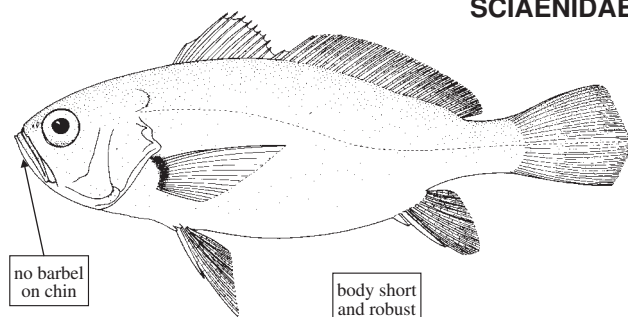
FAO names: **En** - Boe drum; **Fr** - Courbine pélin; **Sp** - Bombache boé.

Local names: Boe-Umberfisch (Gr).

Size: Maximum to 32 cm, commonly to 20 cm.

Fisheries: None at present.

Habitat and biology: In midwater over soft bottoms in coastal areas down to depths of 200 m. Occurs occasionally off northern Namibia.

**SCIAENIDAE*****Umbrina canariensis* Valenciennes, 1843**

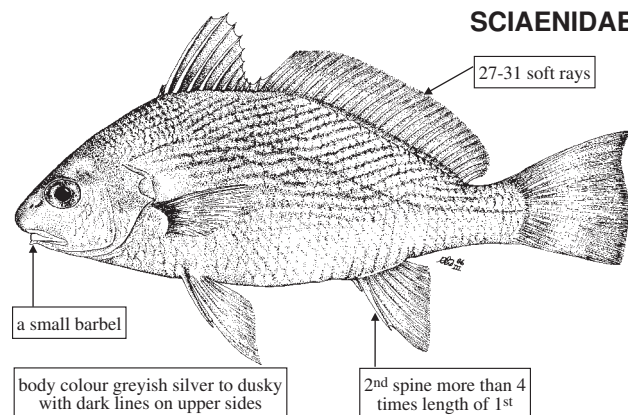
FAO names: **En** - Canary drum; **Fr** - Ombrine bronze; **Sp** - Verrugato de Canarias.

Local names: Baardman; Baardman (Ak).

Size: To 60 cm.

Fisheries: Rarely caught with bottom trawls, and by shore anglers.

Habitat and biology: Inhabits sand and mud bottoms from depths of 50 to 300 m, most common between 160 and 180 m (14 to 15°C), juveniles in shallower waters. Feeds on shrimps, worms, and other bottom dwelling invertebrates.

**SCIAENIDAE**

***Dichistius capensis* (Cuvier, 1831)**

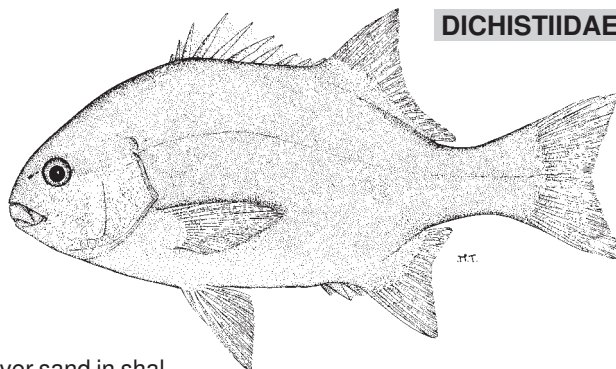
FAO names: **En** - Galjoen; **Fr** - Galjoin franc; **Sp** - Damba.

Local names: Galjoen (Ak); Südafrikanischer Galjoen (Gr).

Size: To 50 cm.

Fisheries: Mainly by shore anglers and rarely as incidental catch of seines. No trade is allowed in this species. Favoured by anglers, this is one of 4 most important recreational angling fishes. Most abundant in winter.

Habitat and biology: Found among rocks and over sand in shallow coastal waters; breeding occurs in deeper water. Feeds mainly on ascidians, mussels, barnacles, and to a lesser extent on seaweeds. Once abundant, now becoming scarce because of overfishing.

**DICHISTIIDAE*****Cheilodactylus fasciatus* Lacepède, 1803**

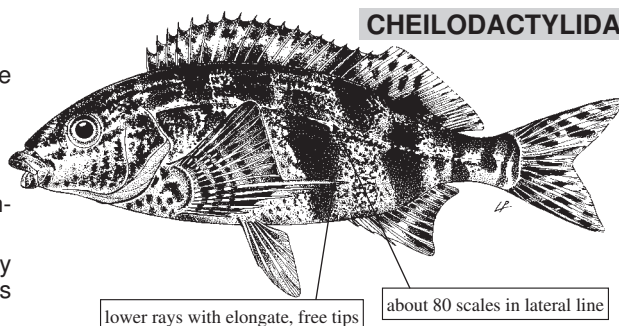
FAO names: **En** - Redfingers; **Fr** - Castanette léopard; **Sp** - Pintadilla leopardo.

Local names: Rooivingers (Ak).

Size: To 30 cm.

Fisheries: Caught occasionally by shore anglers.

Habitat and biology: Common in rocky tidepools. Feeds on small invertebrates (worms, crabs, and shellfish).

**CHEILODACTYLIDAE*****Chirodactylus brachydactylus* (Cuvier, 1830)**

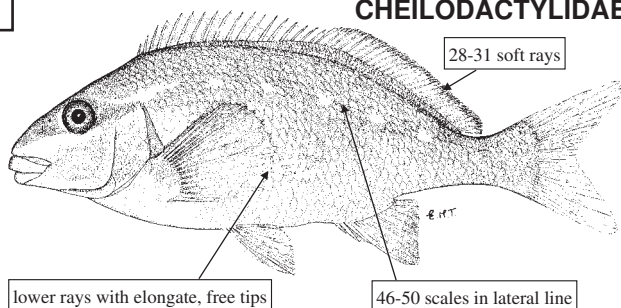
FAO names: **En** - Twotone fingerfin; **Fr** - Castanette bicolore; **Sp** - Pintadilla bicolor.

Local names: Steenklipvis (Ak).

Size: To 40 cm.

Fisheries: None at present.

Habitat and biology: In coastal waters from the shoreline to a depth of 240 m; associated with rocky bottoms. Feeds on various invertebrates.

**CHEILODACTYLIDAE*****Chirodactylus grandis* (Günther, 1860)**

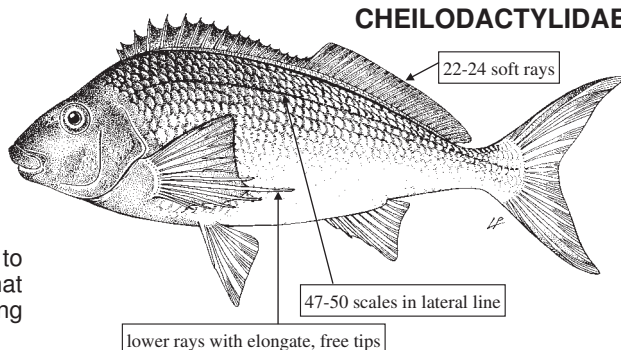
FAO names: **En** - Bank steenbras; **Fr** - Castanette des bancs; **Sp** - Pintadilla de bancs.

Local names: Banksteenbras (Ak).

Size: To 180 cm.

Fisheries: Rare in Namibia.

Habitat and biology: Found from the shoreline to a depth of 150 m; primarily an offshore species that prefers rocky or muddy bottoms. Feeds during daytime on bottom-dwelling invertebrates.

**CHEILODACTYLIDAE**

***Liza dumerili* (Steindachner, 1870)**

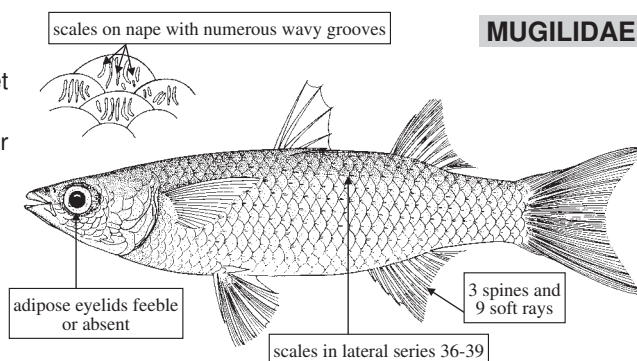
FAO names: **En** - Grooved mullet; **Fr** - Mulet bouri; **Sp** - Liza acanalada.

Local names: Groovy mullet; Keep-harder (Ak).

Size: To almost 40 cm.

Fisheries: None at present.

Habitat and biology: Shallow coastal waters.

**MUGILIDAE*****Liza richardsonii* (Smith, 1846)**

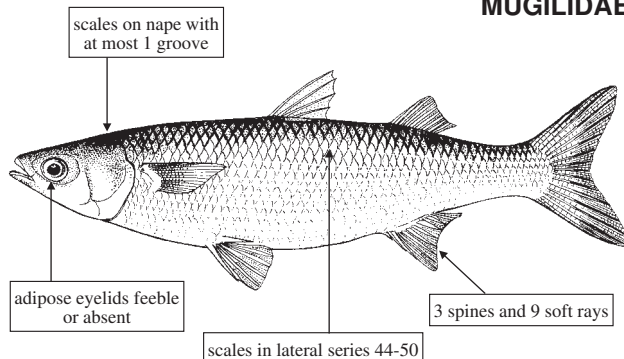
FAO names: **En** - South African mullet; **Fr** - Mulet sudafricain; **Sp** - Liza sudafricana.

Local names: Southern mullet; Suidelike harder (Ak).

Size: To 40 cm.

Fisheries: Caught with beach seines.

Habitat and biology: Inhabits coastal waters, mainly off rocky points and sandy beaches; may also enter estuaries as nursery areas. Feeds mostly on diatoms and detritus, but also on small planktonic crustaceans. Sexual maturity is reached at about 20 cm.

**MUGILIDAE*****Mugil cephalus* Linnaeus, 1758**

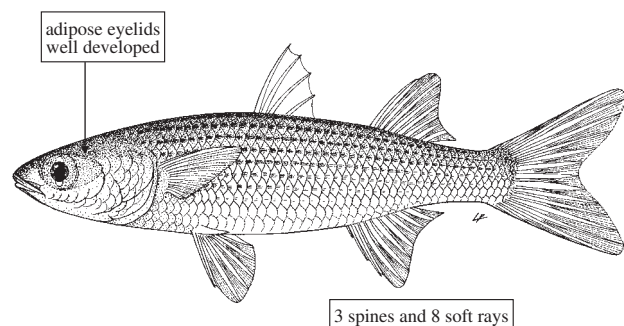
FAO names: **En** - Flathead grey mullet; **Fr** - Mulet cabot; **Sp** - Pardete.

Local names: Flathead mullet; Platkop-harder (Ak); Gestreifte Meeräsche, Gewöhnliche Meeräsche, Großkopf-Meerüsch.

Size: Maximum 120 cm, common to 50 cm.

Fisheries: Caught occasionally with beach seines.

Habitat and biology: Inhabits coastal marine waters, estuaries, brackish lagoons, and rivers. Feeds on algae and small benthic organisms. Sexual maturity is reached at the age of 3 to 4 years (about 45 cm). Spawning occurs near estuaries where juveniles remain for up to 3 years.

**MUGILIDAE*****Sphyraena afra* Peters, 1841**

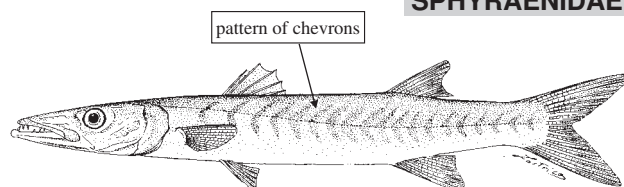
FAO names: **En** - Guinean barracuda; **Fr** - Bé - cune guinéenne; **Sp** - Espetón de Guinea.

Local names: Guineese-barrakuda (Ak); Guinea-Barrakuda (Gr).

Size: To 205 cm.

Fisheries: Rare in Namibia.

Habitat and biology: Known to occur on the continental shelf, from the surface to a depth of 75 m.

**SPHYRAENIDAE**

Gymnammodytes capensis (Barnard, 1927)**AMMODYTIDAE**

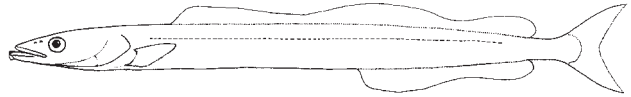
FAO names: **En** - Cape sandlance; **Fr** - Cicerello du Cap; **Sp** - Barrinaire del Cabo.

Local names: Kaapse sanddolk (Ak).

Size: To 17 cm.

Fisheries: None at present.

Habitat and biology: In shallow coastal waters, mainly on sandy bottoms.

*Paracallionymus costatus* (Boulenger, 1899)**CALLIONYMIDAE**

FAO names: **En** - Cape dragonet;

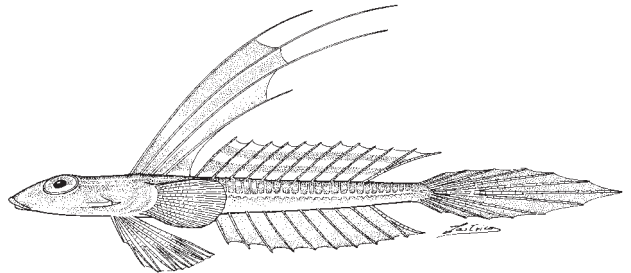
Fr - Dragonnet-lyre du Cap; **Sp** - Costurones.

Local names: Ladder dragonet; Leer-drakie (Ak).

Size: To 15 cm total length.

Fisheries: Occasionally caught in trawl fisheries in the southern part of Namibia.

Habitat and biology: Occurs on the bottom in depths between 55 and 400 m.

*Sufflogobius bibarbatus* (von Bonde, 1923)

(plate VII, 56)

GobiIDAE

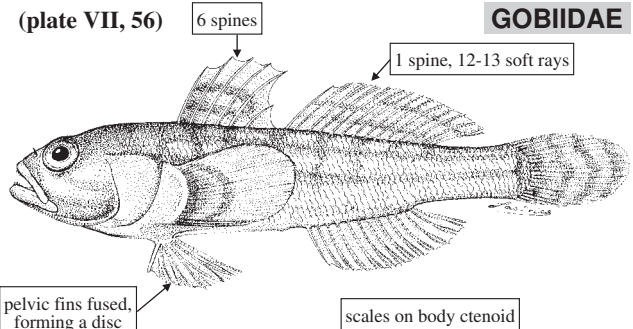
FAO names: **En** - Pelagic goby; **Fr** - Gobie pélagique; **Sp** - Cabezudo de barbas.

Local names: Pelagiese dikkop (Ak).

Size: To 17 cm.

Fisheries: Commonly caught in trawls. Occasionally targeted by purse seines for use in the fish meal and oil industry. Over 30 000 t was landed in 1998.

Habitat and biology: Occurs in shoals to depths of about 90 m; juveniles (3 to 7 cm long) are epipelagic while adults (7 to 15 cm) migrate to deeper waters; large adults (12 to 15 cm) are only recorded from demersal trawls; they appear to prefer cooler waters of 11° to 15°C. They reach maturity at 4 years of age. Feeds on phytoplankton and is an important prey of horse mackerel, hake, penguins, Cape cormorants, fur seals, and snoek. Found south of Cape Cross.

*Diplospinus multistriatus* Maul, 1948**GEMPYLIDAE**

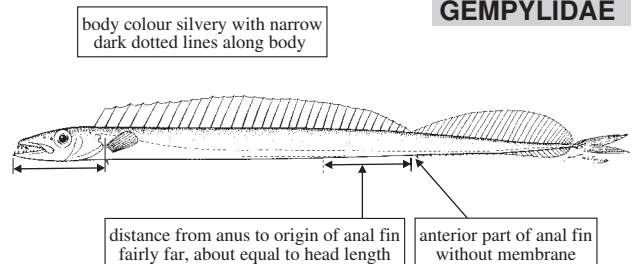
FAO names: **En** - Striped escolar; **Fr** - Escolier rayé; **Sp** - Escolar rayado.

Local names:

Size: To about 33 cm standard length.

Fisheries:

Habitat and biology: Mesopelagic and oceanic in depths between 100 and 1 000 m. Migrates to upper water layers (100 to 200 m) at night. Feeds on crustaceans and small fishes. Females mature at about 16 cm.



***Gempylus serpens* Cuvier, 1829**

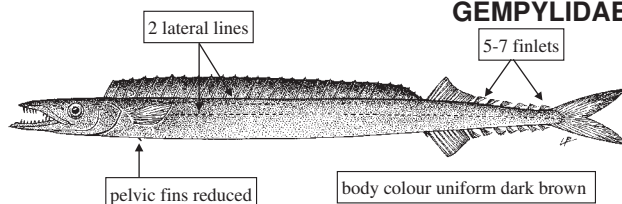
FAO names: **En** - Snake mackerel; **Fr** - Escolier serpent; **Sp** - Escolar de caval.

Local names: Slangmakriel (Ak).

Size: To 100 cm (standard length).

Fisheries: Rarely in bottom trawls

Habitat and biology: Mesopelagic or pelagic and oceanic, from the surface to a depth of 200 m; close to the surface at night. Feeds on bony fishes (flyingfishes and myctophids), crustaceans, and cephalopods. Males mature at 43 cm standard length, females at 50 cm.

**GEMPYLIDAE*****Lepidocybium flavobrunneum* (Smith, 1849)**

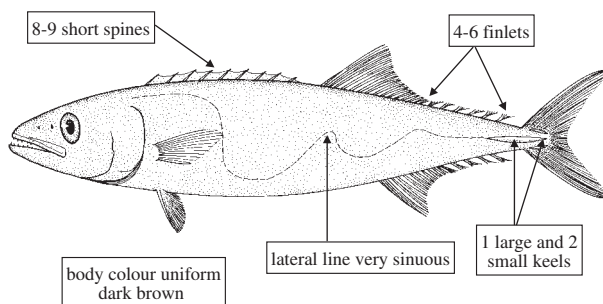
FAO names: **En** - Escolar; **Fr** - Escolier noir; **Sp** - Escolar negro.

Local names: Skolier (Ak); Escolar-Schlangenmakrele (Gr).

Size: To 200 cm (standard length).

Fisheries: Caught mainly with longlines as bycatch of hake fisheries off Lüderitz.

Habitat and biology: Mesopelagic, to depths of 200 m or more. Feeds on a wide variety of fishes, crustaceans, and cephalopods. Flesh oily, with purgative properties.

**GEMPYLIDAE*****Nealotus tripes* Johnson, 1865**

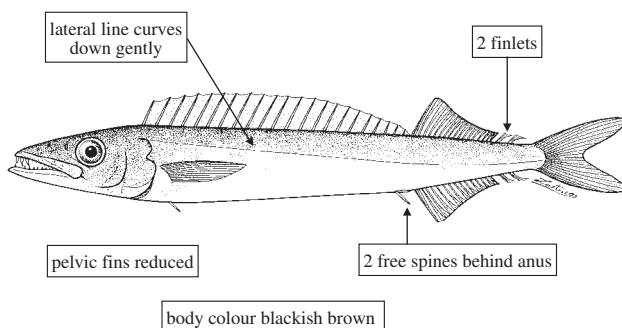
FAO names: **En** - Black snake mackerel; **Fr** - Escolier reptile; **Sp** - Escolar oscuro.

Local names:

Size: Maximum to 25 cm, common to 15 cm standard length.

Fisheries: None at present.

Habitat and biology: Epi- to mesopelagic from the surface to a depth of about 600 m. Migrates to surface waters at night. Feeds on myctophids and other small fishes, squid, and crustaceans. Matures at 15 cm standard length.

**GEMPYLIDAE*****Nesiarchus nasutus* Johnson, 1862**

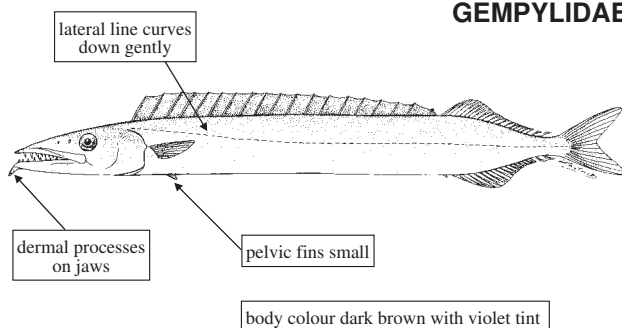
FAO names: **En** - Black gemfish; **Fr** - Escolier long nez; **Sp** - Escolar narigudo.

Local names:

Size: Maximum about 130 cm standard length, commonly 30 to 80 cm.

Fisheries: None at present.

Habitat and biology: Benthic- to mesopelagic in depths between 200 and 1 200 m. Feeds on squids, shrimps, and crustaceans.

**GEMPYLIDAE**

Paradiplospinus gracilis* (Brauer, 1906)*GEMPYLIDAE**

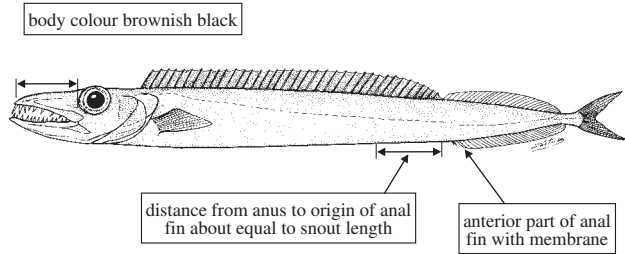
FAO names: **En** - Slender escolar; **Fr** - Escolier élégant; **Sp** - Escolar magro.

Local names:

Size: To 52 cm.

Fisheries: Caught rarely in deep-water trawls.

Habitat and biology: Benthopelagic to upper continental slope (depths of 350 to 650 m), juveniles pelagic. Specimens of 35 to 40 cm standard length collected with ripe gonads.

***Promethichthys prometheus* (Cuvier, 1832)****GEMPYLIDAE**

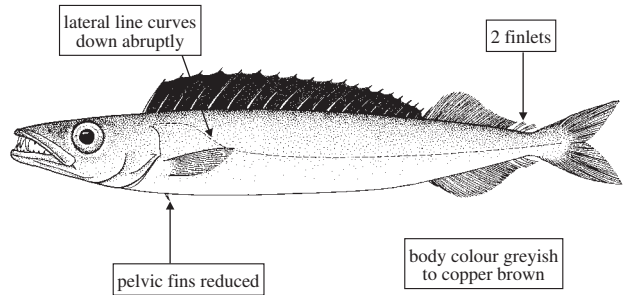
FAO names: **En** - Roudi escolar; **Fr** - Escolier clair; **Sp** - Escolar prometeo.

Local names:

Size: Maximum to about 100 cm.

Fisheries: Rarely caught in bottom trawls.

Habitat and biology: Benthopelagic on continental slopes at depths between 100 and 750 m. Migrates to midwater at night and feeds on fish, cephalopods, and crustaceans.

***Ruvettus pretiosus* Cocco, 1829 (plate XI, 88)****GEMPYLIDAE**

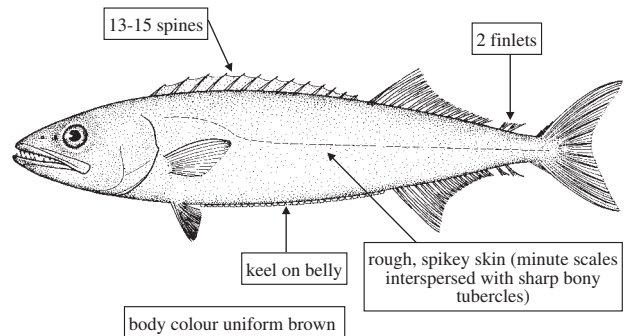
FAO names: **En** - Oilfish; **Fr** - Rouvet; **Sp** - Escolar clavo.

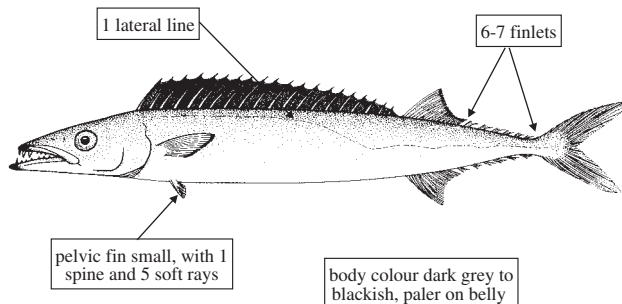
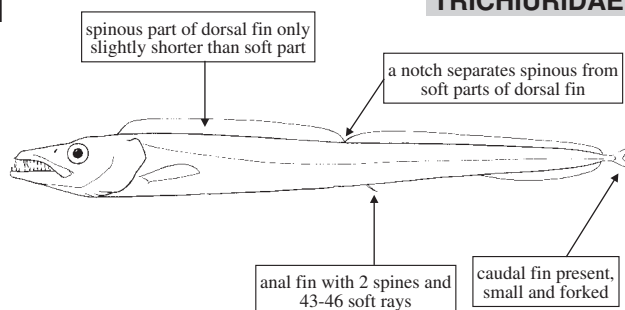
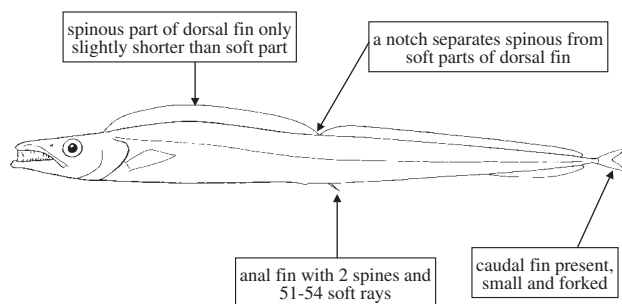
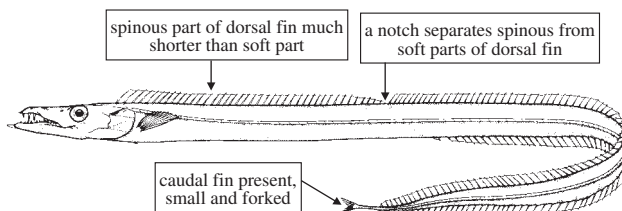
Local names: Olievis (Ak); Ölfisch, Rizinusöl-Fisch, Shlangenmakrele (Gr).

Size: To 200 cm, common to 150 cm.

Fisheries: Rarely caught in bottom trawls. A significant bycatch of the swordfish fishery.

Habitat and biology: Benthopelagic, usually over the continental shelf but also recorded to depths of 800 m. Feeds on a wide variety of fishes, crustaceans, and cephalopods. The flesh may cause diarrhea.



Thyrssites atun* (Euphrasen, 1791) (plate VIII, 57)*SNK GEMPYLIDAE****FAO names:** **En** - Snoek; **Fr** - Escolier; **Sp** - Sierra.**Local names:** Snoek (Ak); Atun (Gr).**Size:** To 100 cm.**Fisheries:** Caught commercially by ski-boats and linefish boats. A bycatch of midwater trawlers and occasionally caught in bottom trawls or longliners.**Habitat and biology:** Pelagic in coastal waters, preferring temperatures between 13° and 18°C. Feeds on anchovy and pilchard, but when these resources are less available, also on crustaceans, molluscs, and other fishes. Sexual maturity is reached at 60 cm.***Aphanopus microphthalmus* Norman, 1939****TRICHIURIDAE****FAO names:** **En** - Smalleye scabbardfish; **Fr** - Poisson sabre petits yeux; **Sp** - Sable ojito.**Local names:****Size:** To 100 cm.**Fisheries:** Caught incidentally in trawls.**Habitat and biology:** Inhabits deeper waters of the continental shelf and slope.***Aphanopus mikhailini* Parin, 1983****TRICHIURIDAE****FAO names:** **En** - Mikhailin's scabbardfish; **Fr** - Poisson sabre jarretière; **Sp** - Sable de Mikhailin.**Local names:****Size:** To 90 cm.**Fisheries:** Caught incidentally in bottom trawls.**Habitat and biology:** Caught at depths of 1 035 to 2 000 m.***Benthodesmus tenuis* (Günther, 1877)****TRICHIURIDAE****FAO names:** **En** - Slender frostfish; **Fr** - Sabre fleuret; **Sp** - Cintilla.**Local names:** Slant kalkvis (Ak).**Size:** To around 72 cm standard length.**Fisheries:** Caught as bycatch in trawls and on longlines.**Habitat and biology:** Benthopelagic, mostly over the continental slope in depths between 200 and 800 m.

***Lepidopus caudatus* (Euphrasen, 1788)**

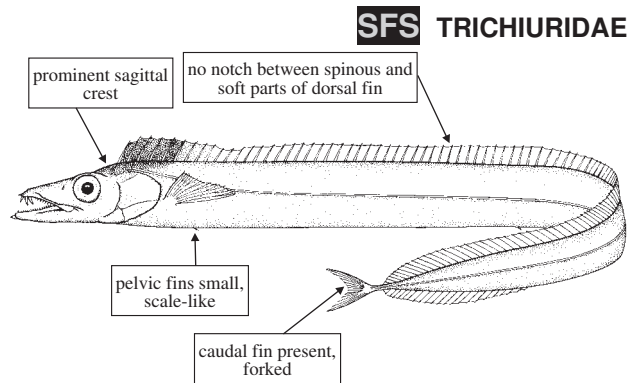
FAO names: **En** - Silver scabbardfish; **Fr** - Sabre argenté; **Sp** - Pez cinto.

Local names: Buttersnoek; Bottersnoek (Ak); Degenfisch, Strumpfbandfisch (Gr).

Size: To 210 cm.

Fisheries: Commonly caught with bottom trawls, sometimes on line gear. A bycatch of the deep-water fishery.

Habitat and biology: Benthopelagic, down to 600 m or more, usually over sandy bottoms. Found in inshore waters in upwelling areas. Feeds on krill, shrimps, clupeoids, mesopelagic fish, and chub mackerel.

***Trichiurus lepturus* Linnaeus, 1758**

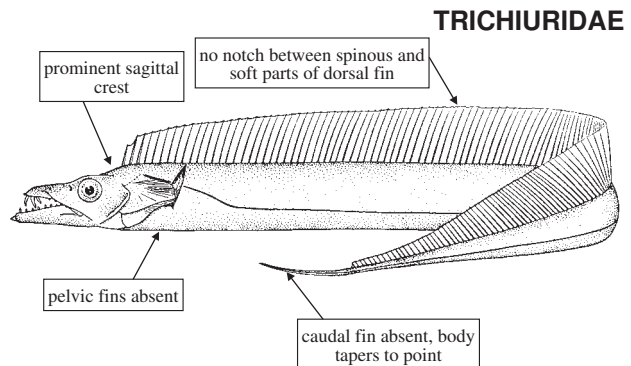
FAO names: **En** - Largehead hairtail; **Fr** - Poisson sabre commun; **Sp** - Pez sable.

Local names: Cutlassfish; Haarstert (Ak); Degenfisch, Haarschwanz (Gr).

Size: To 200 cm.

Fisheries: Caught rarely with bottom trawls.

Habitat and biology: Benthopelagic on the continental shelf and upper slope to at least a depth of 350 m; often in shallow coastal waters, on muddy bottoms. Feeds mainly on fishes, but occasionally on crustaceans and cephalopods.

***Allothunnus fallai* Serventy, 1948**

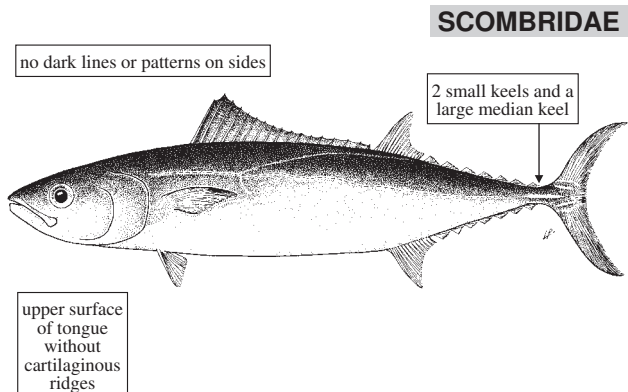
FAO names: **En** - Slender tuna; **Fr** - Thon élégant; **Sp** - Atún lanzón.

Local names: Slank tuna (Ak); Schlankthun (Gr).

Size: To 96 cm (fork length), typically much smaller.

Fisheries: Caught incidentally with longlines.

Habitat and biology: Epipelagic. Feeds on krill, squid, and small fishes.



Katsuwonus pelamis* (Linnaeus, 1758)*SKJ** SCOMBRIDAE

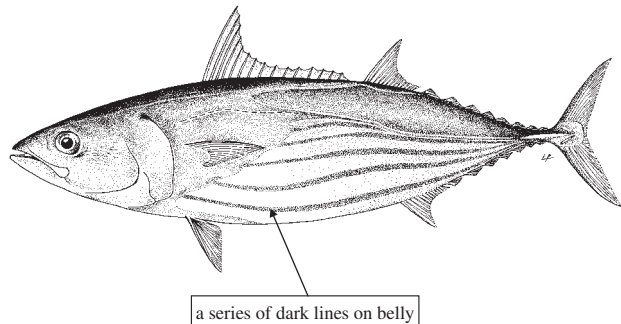
FAO names: **En** - Skipjack tuna; **Fr** - Bonite à ventre rayé (Listao); **Sp** - Listado.

Local names: Pensstreep-tuna (Ak); Bauchstreifiger Bonito, Bonito, Echter Bonito, Gestreifter Thunfisch (Gr).

Size: To 108 cm (fork length).

Fisheries: Targeted by pole-and-line vessels and caught with longlines.

Habitat and biology: Epipelagic and oceanic, widely distributed in all oceans within the 15°C isotherm; usually concentrated in the more productive upwelling or discontinuity areas, ranges from the surface, during nighttime, to about a depth of 250 m during daytime. Feeds on fishes, crustaceans, and molluscs; cannibalism is also common.

***Sarda sarda* (Bloch, 1793)****SCOMBRIDAE**

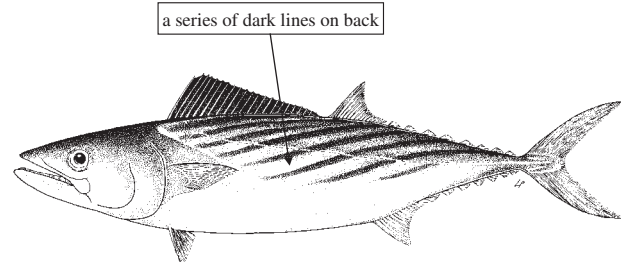
FAO names: **En** - Atlantic bonito; **Fr** - Bonite à dos rayé; **Sp** - Bonito atlántico.

Local names: Atlantiese bonito (Ak); Bonito, Pelamide (Gr).

Size: To 90 cm (fork length).

Fisheries: None at present.

Habitat and biology: An epipelagic neritic schooling species, able to adapt to different temperatures (12° to 27°C) and salinities (14‰ to 39‰). Feeds on fishes, squids, and shrimps. Both juveniles and adults are known to be cannibalistic.

***Scomber japonicus* Houttuyn, 1782****MAS** SCOMBRIDAE

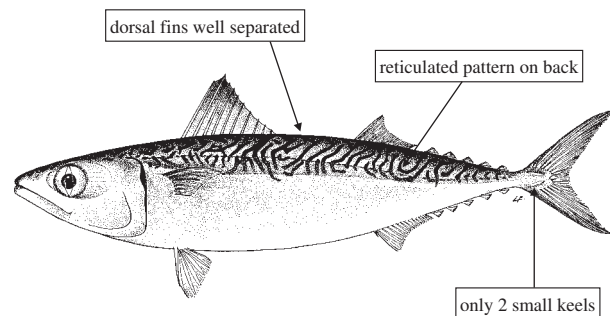
FAO names: **En** - Chub mackerel; **Fr** - Maquereau espagnol; **Sp** - Estornino.

Local names: Mackerel; Makriel (Ak); Caballa (Sp).

Size: To 50 cm (fork length).

Fisheries: Caught occasionally as a bycatch of midwater trawls but also in bottom trawls and occasionally targeted by purse seines.

Habitat and biology: A coastal pelagic species, occurring from the surface to 300 m depth. An opportunistic, non-selective feeder, its prey includes krill, mantis shrimps, megalops crab larvae, and small fish. Its predators include tunas, billfishes, sharks, sea lions, and pelicans.



Thunnus alalunga* (Bonnaterre, 1788)*ALB** SCOMBRIDAE

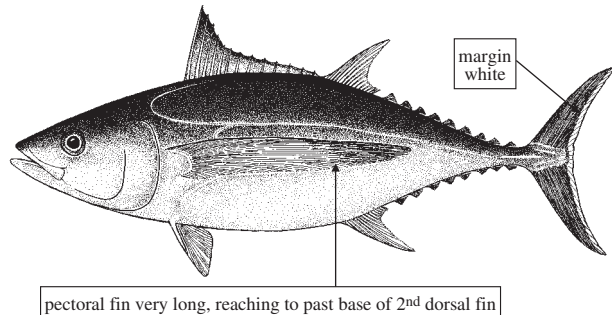
FAO names: **En** - Albacore; **Fr** - Germon; **Sp** - Atún blanco.

Local names: Albakoor (Ak); Germon, Langflossenthun, Weißer Thun, Weißer Thunfisch (Gr).

Size: To 130 cm (fork length).

Fisheries: Caught with longlines, pole-and-line, trolling, and live-bait fishing. A bycatch of the swordfish fishery.

Habitat and biology: Epi- and mesopelagic, oceanic species, concentrating along thermal discontinuities with oxygen content higher than about 2 ml/l. Feeds on a wide variety of organisms but preferred items comprise anchovy, pilchard, and lanternfishes; feeding may occur at the surface as well as in deep waters below the thermocline. Sexual maturity is reached at about 90 cm.

***Thunnus albacares* (Bonnaterre, 1788)****YFT** SCOMBRIDAE

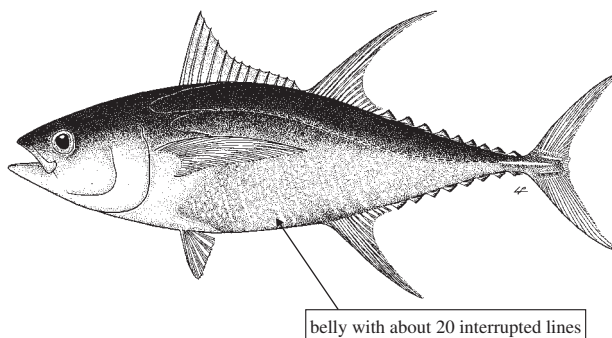
FAO names: **En** - Yellowfin tuna; **Fr** - Albacore; **Sp** - Rabil.

Local names: Geelvin-tuna (Ak); Albacore, Gelbflossenthun (Gr).

Size: To over 200 cm (fork length).

Fisheries: Caught mainly with longlines. An occasional bycatch of midwater trawlers.

Habitat and biology: An oceanic species, found above and below the thermocline, at temperatures between 18° and 31°C and oxygen levels more than 2 ml/l. An opportunistic feeder, preys on almost any small pelagic organism such as fish, mantis shrimp, and squid.

***Thunnus obesus* (Lowe, 1839)****BET** SCOMBRIDAE

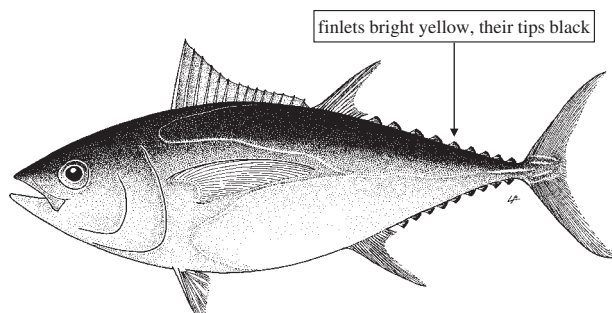
FAO names: **En** - Bigeye tuna; **Fr** - Thon obèse; **Sp** - Patudo.

Local names: Grootoog-tuna (Ak); Dickleibiger Thun, Großaugenthun, Großaugiger, Thun (Gr).

Size: To 200 cm (fork length).

Fisheries: Caught mainly with longlines. A significant bycatch of the swordfish fishery.

Habitat and biology: A pelagic, oceanic species, caught from the surface to 250 m depth, at water temperatures ranging from 13° to 29°C. Feeds on a wide variety of fish species, cephalopods, and crustaceans, and is preyed upon by large billfishes and toothed whales.



Xiphias gladius Linnaeus, 1758

SWO XIPHIIDAE

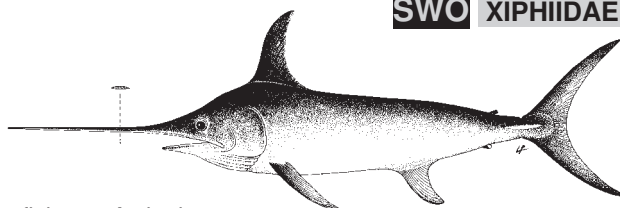
FAO names: **En** - Swordfish; **Fr** - Espadon; **Sp** - Pez espada.

Local names: Swaardvis (Ak); Schwertfisch (Gr).

Size: Maximum: 445 cm (total length) and 540 kg.

Fisheries: Caught as bycatch in the tuna longline fishery. A single vessel targeting this species in the mid-1990's on an experimental basis.

Habitat and biology: Mainly oceanic. Feeds on surface or near-surface fishes (for example flyingfish, tunas, oilfishes, dolphinfishes, and mackerel), but also on bottom organisms (for example hakes and trichiurids) when in waters less than 800 m deep. It is likely that this species uses its sword to kill some of its prey, particularly squids and cuttlefishes, as shown by the slashes on the bodies found in swordfish stomachs.


Istiophorus platypterus (Shaw and Nodder, 1791)

ISTIOPHORIDAE

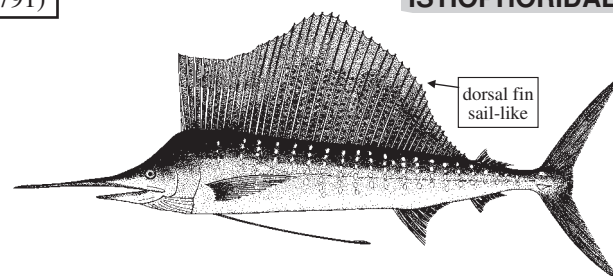
FAO names: **En** - Sailfish; **Fr** - Voilier; **Sp** - Pez vela.

Local names: Seilvis (Ak); Indopazifischer Segelfisch, Pazifischer Facherfisch, Pazifischer Segelfisch (Gr)

Size: To 3 m (total length).

Fisheries: Rare in Namibia.

Habitat and biology: A primarily oceanic species, usually above the thermocline, but more coastal than other billfishes. Feeds on a wide variety of fishes, crustaceans, and cephalopods. Growth is rapid, at the age of 3 years fish are mature and have already reached 1.5 m.


Makaira nigricans Lacepède, 1802

height of front dorsal-fin lobe shorter than body depth

BUM ISTIOPHORIDAE

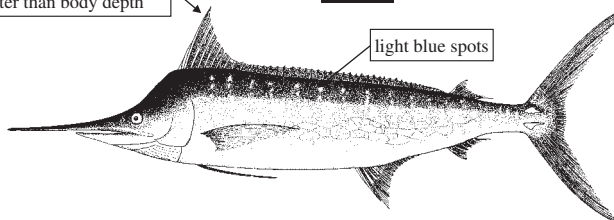
FAO names: **En** - Blue marlin; **Fr** - Makaïre bleu; **Sp** - Aguja azul.

Local names: Blou marlyn (Ak); Blauer Marlin (Gr).

Size: To 4 m.

Fisheries: Caught mainly with longlines and by trolling. Rarely caught by the swordfish fishery.

Habitat and biology: Oceanic, highly migratory, usually found above the thermocline. Feeds on a wide variety of fishes, crustaceans, and cephalopods; feeding takes place during daytime. Maturity is reached at about 80 cm in males (about 40 kg) and at 50 cm in females (about 55 kg).


Tetrapterus albidus Poey, 1860

ISTIOPHORIDAE

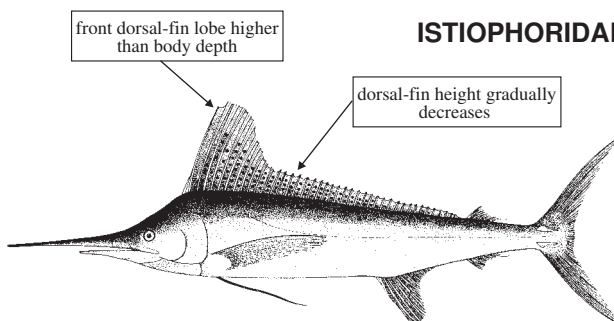
FAO names: **En** - White marlin; **Fr** - Makaïre blanc; **Sp** - Aguja blanca.

Local names: Wit marlyn (Ak); Weißer Marlin (Gr).

Size: Maximum 3 m, common to 2 m.

Fisheries: Caught on surface longlines, trolling.

Habitat and biology: Pelagic, above the thermocline.



Tetrapturus pfluegeri Robins and de Sylva, 1963

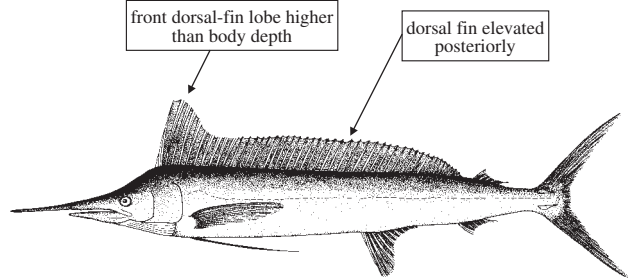
FAO names: **En** - Longbill spearfish; **Fr** - Makaire bécune; **Sp** - Aguja picuda.

Local names: Langbek-speervis (Ak); Langschnauziger Speerfisch (Gr).

Size: To 2 m (standard length) and 30 kg body weight.

Fisheries: Caught with longlines as bycatch of tuna longline fisheries.

Habitat and biology: Epipelagic and oceanic, usually found above the thermocline. Feeds on bony fishes, crustaceans, and cephalopods.

**ISTIOPHORIDAE*****Centrolophus niger*** (Gmelin, 1789)

(plate VIII, 58 and 59)

CENTROLOPHIDAE

FAO names: **En** - Black fish; **Fr** - Centrolophe noir; **Sp** - Romerillo.

Local names: Black ruff; Swartroef (Ak); Schwarzfisch (Gr).

Size: To 1.2 m.

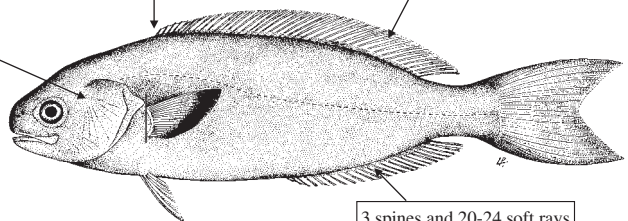
Fisheries: Taken occasionally as bycatch in trawls.

Habitat and biology: Occurs on the upper continental slope to depths of about 250 to 650 m.

head naked, with prominent pores

origin of dorsal fin behind pectoral-fin base (over insertion in small specimens)

37-41 total rays



colour dark brown to black; juveniles with 2-4 dark bars

Hyperoglyphe moselii (Cunningham, 1910)

Synonyms: *Hyperoglyphe matthewsi* (Smith, 1960).

FAO names: **En** - African barrellfish; **Fr** - Rouffe africain; **Sp** - Rufo africano.

Local names: Black butterfly; Swart bottervis (Ak).

Size: To 100 cm.

Fisheries: Occasionally caught in bottom trawls.

Habitat and biology: Found on the upper continental slope, from depths of 200 to 500 m.

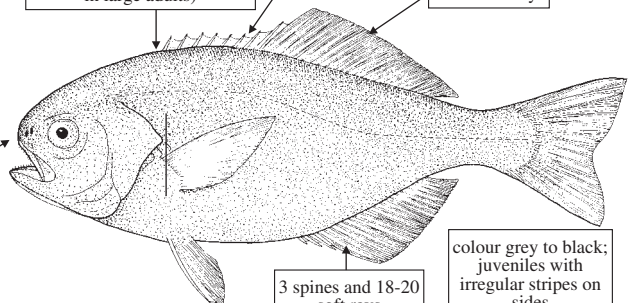
snout rounded

origin of dorsal fin in front of pectoral-fin base (over base in large adults)

8 spines

CENTROLOPHIDAE

23-26 soft rays



colour grey to black; juveniles with irregular stripes on sides

***Schedophilus huttoni* (Waite, 1910)**

(plate VIII, 60)

origin of dorsal fin in front of pectoral-fin base (over base in large adults)

CENTROLOPHIDAE

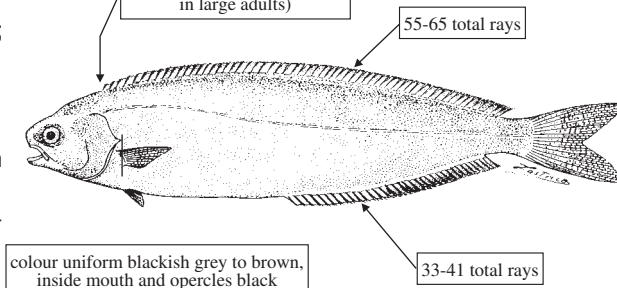
FAO names: En - Rag ruff; Fr - Rouffe chiffon; Sp - Rufino pelado.

Local names:

Size: To 90 cm.

Fisheries: Caught in bottom trawls. A bycatch of the deep-water fishery.

Habitat and biology: Found on the upper continental slope, from depths of 270 to 500 m.

***Schedophilus velani* Sauvage, 1879**

origin of dorsal fin in front of pectoral-fin base (over base in large adults)

6-8 spines

CENTROLOPHIDAE

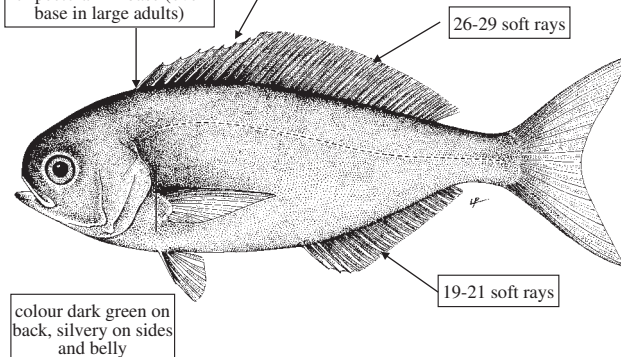
FAO names: En - Southern imperial blackfish.

Local names: Oval driftfish; Ovale dryfvis (Ak).

Size: To 100 cm.

Fisheries: Rarely caught in bottom trawls.

Habitat and biology: Found along the edge of continental shelves commonly in depths between 80 and 240 m; the young are epipelagic, associated with medusae and siphonophores.

***Schedophilus pamarco* (Poll, 1959)**

origin of dorsal fin in front of pectoral-fin base (over base in large adults)

5-7 spines

CENTROLOPHIDAE

FAO names: En - Pamarco blackfish; Fr - Rouffe rayé; Sp - Rufo pamarco.

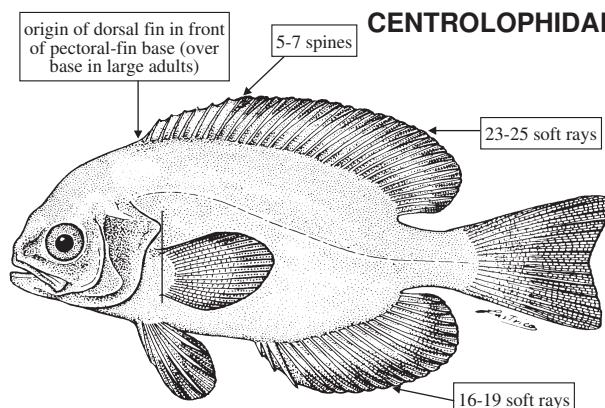
Local names:

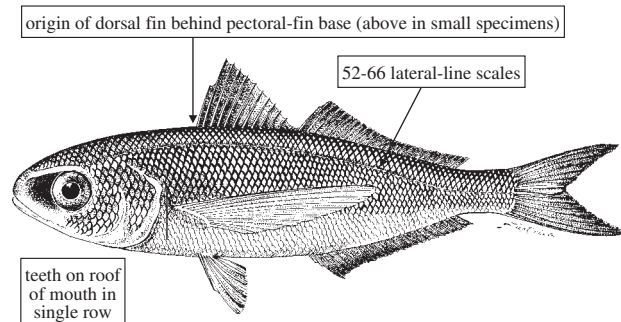
Size: To 30 cm.

Fisheries: None at present.

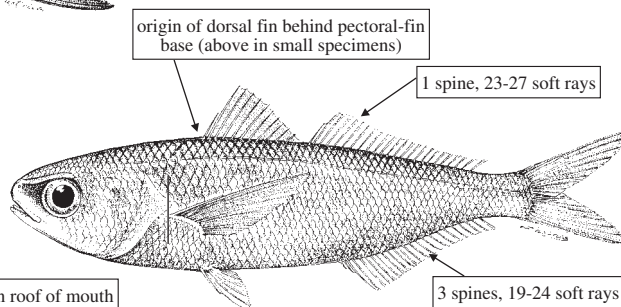
Habitat and biology: Found on the deeper continental shelf and upper slope, from depths of 100 to 500 m.

colour dark grey-blue to brownish; juveniles with irregular stripes on sides

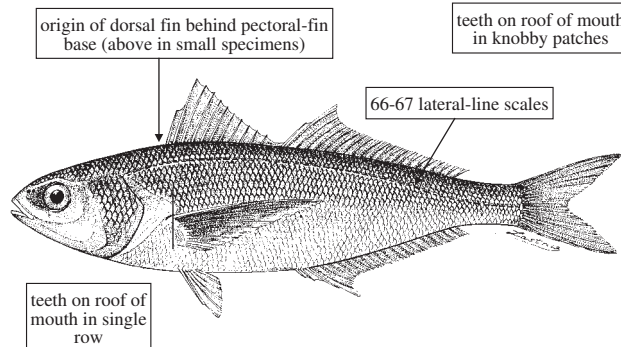


All species of **NOMEIDAE** reported from Namibia**NOMEIDAE**

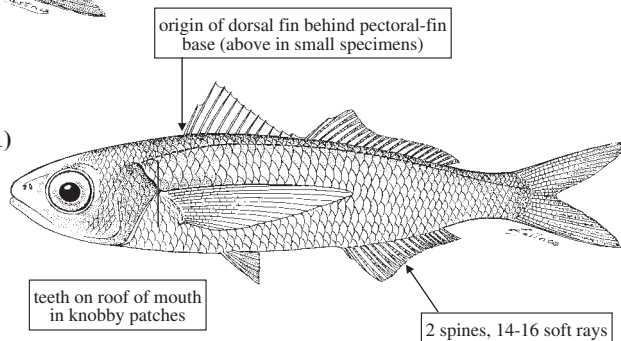
Cubiceps baxteri McCulloch, 1923
To over 100 cm.



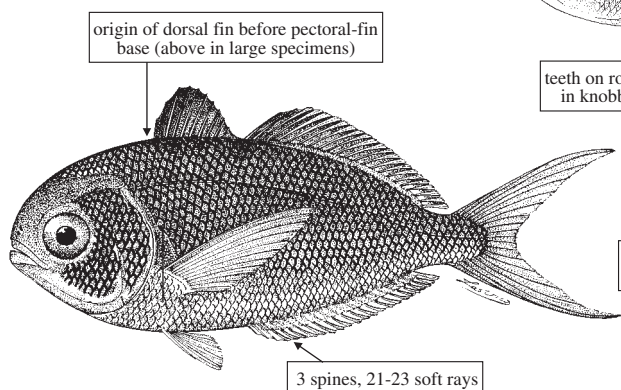
Cubiceps caeruleus Regan, 1914
To 25 cm.



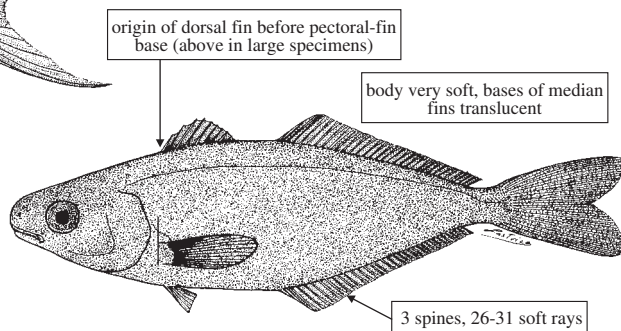
Cubiceps capensis (Smith, 1849) (plate VIII, 61)
To 90 cm.



Cubiceps pauciradiatus Günther, 1872
To 20 cm.



Psenes arafurensis Günther, 1889
To 25 cm.



Psenes pellucidus Lütken, 1880
To 80 cm.

***Stromateus fiatola* Linnaeus, 1758**

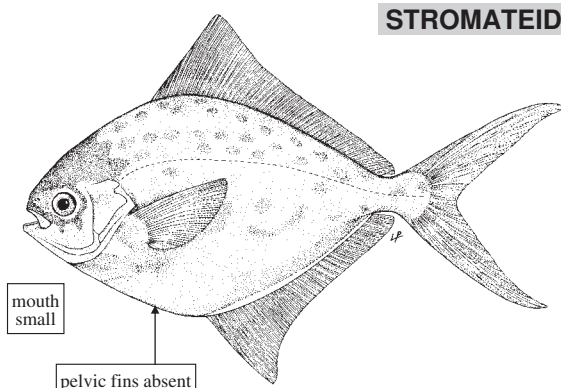
FAO names: **En** - Butterfish; **Fr** - Fiatole; **Sp** - Palometa fiátola.

Local names: Blue butterfish; Blou bottervis (Ak); Deckfisch, Gemeine Pampel, Pampelfisch (Gr); Pompano (Sp).

Size: To 50 cm.

Fisheries: Caught rarely with trawls.

Habitat and biology: A pelagic species, forming large shoals from depths of 10 to 70 m. Feeds on zooplankton and small fishes. Mainly off northern Namibia.

**STROMATEIDAE*****Tetragonurus atlanticus* Lowe, 1839**

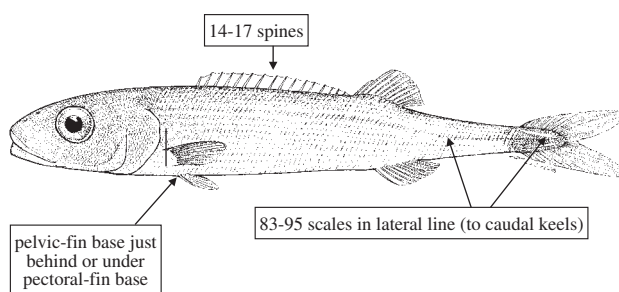
FAO names: **En** - Bigeye squaretail; **Fr** - Tétragonure atlantique; **Sp** - Escolar-de-natura atlántico.

Local names: Grootoog-stompstert (Ak).

Size: To 50 cm.

Fisheries: Caught rarely in trawls.

Habitat and biology: A pelagic species. Feeds on soft-bodied invertebrates. The flesh may be poisonous. It is preyed upon by tunas and other large predators.

**TETRAGONURIDAE*****Tetragonurus cuvieri* Risso, 1810**

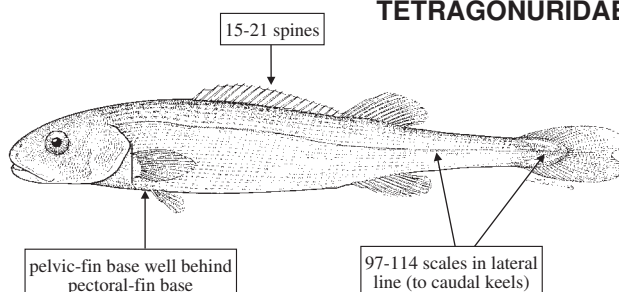
FAO names: **En** - Smalleye squaretail; **Fr** - Tétragonure de Cuvier; **Sp** - Pez lima.

Local names: Kleinoog-stompstert (Ak).

Size: To 70 cm.

Fisheries: None at present.

Habitat and biology: An epi- and mesopelagic species, sometimes abundant offshore. May be poisonous. Feeds on soft-bodied invertebrates and it is preyed upon by tunas and other large predators.

**TETRAGONURIDAE*****Arnoglossus capensis* Boulenger, 1898**

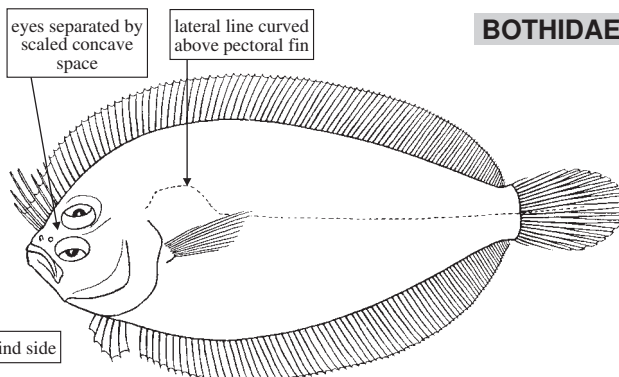
FAO names: **En** - Cape scaldfish; **Fr** - Arnoglosse du Cap; **Sp** - Peludilla del Cabo.

Local names: Cape flounder; Kaapse botvis (Ak).

Size: To 18 cm.

Fisheries: None at present.

Habitat and biology: From shallow inshore waters to depths over 100 m; mainly on sand and shell bottoms.

**BOTHIDAE**

***Arnoglossus imperialis* (Rafinesque, 1810)**

Synonyms: *Arnoglossus blachei* Stauch, 1965.

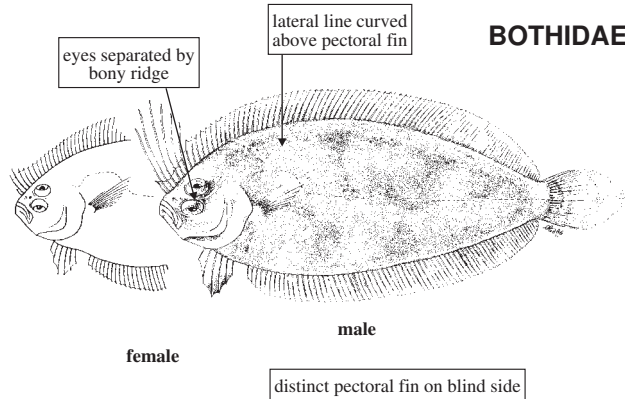
FAO names: **En** - Imperial scaldfish; **Fr** - Arnoglosse impériale; **Sp** - Serrandel imperial.

Local names:

Size: To 25 cm.

Fisheries: None at present.

Habitat and biology: Found on mud, sand, shell, and corals, in depths between 40 and 200 m.

**BOTHIDAE*****Chascanopsetta lugubris* Alcock, 1894**

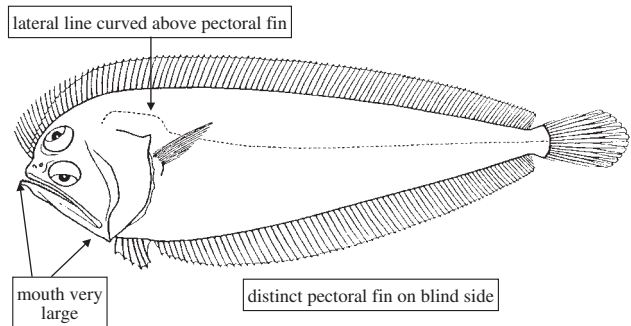
FAO names: **En** - Pelican flounder; **Fr** - Perpeire pélican; **Sp** - Lenguado pelicano.

Local names: Pelikaan-botvis (Ak).

Size: To 38 cm.

Fisheries: None at present.

Habitat and biology: Demersal, from the deeper continental shelf to depths of almost 1 000 m, on sand, mud, and clay bottoms.

**BOTHIDAE*****Monolene microstoma* (Cadenat, 1937)**

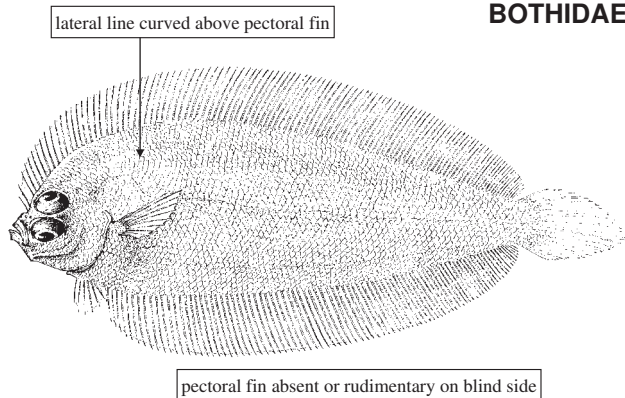
FAO names: **En** - Small mouth moonflounder; **Fr** - Monolène à petite bouche; **Sp** - Monolena bocachica.

Local names:

Size: To 20 cm.

Fisheries: None at present.

Habitat and biology: Found on muddy bottoms from depths between 25 and 400 m.

**BOTHIDAE*****Syacium micrurum* Ranzani, 1840**

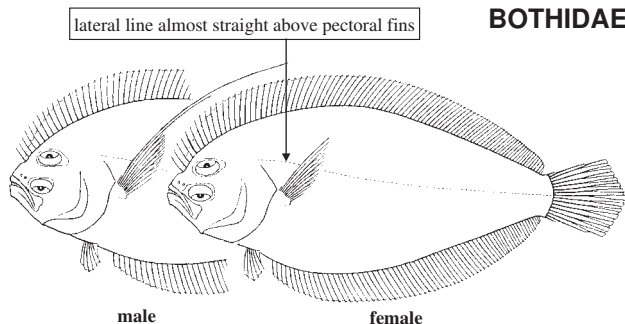
FAO names: **En** - Channel flounder; **Fr** - Fausse limande paté; **Sp** - Lenguado paté.

Local names:

Size: To 40 cm.

Fisheries: None at present.

Habitat and biology: On mud, sand, and gravel bottoms, from depths of 15 to 200 m.

**BOTHIDAE**

***Austroglossus microlepis* (Bleeker, 1863)**

(plate VIII, 62)

SOW SOLEIDAE

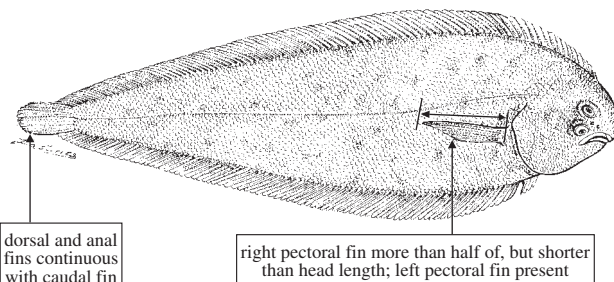
FAO names: **En** - West coast sole; **Fr** - Sole australe occidentale; **Sp** - Lenguado del sur.

Local names: Weskus-tongvis (Ak); Westküsten-Seezunge (Gr).

Size: To 75 cm (4 kg).

Fisheries: Caught with bottom trawls. Was important commercially, but was heavily overfished and catches now only amount to a few hundred tonnes per year. The only flatfish important commercially.

Habitat and biology: Found at depths of 100 to 300 m; larvae are pelagic while adults live close to the sea bed. Adults prey on worms, crustaceans, molluscs, and fish (gobies and ladder dragonets).

***Austroglossus pectoralis* (Kaup, 1858)****SOLEIDAE**

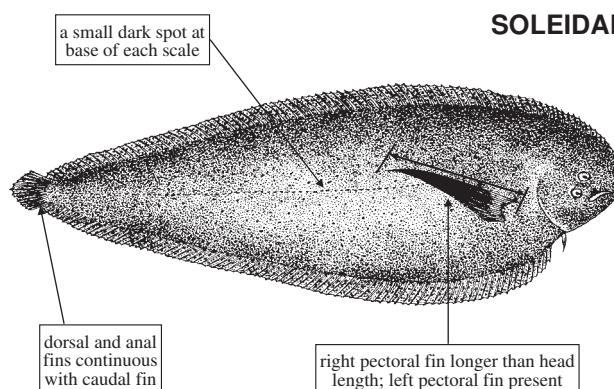
FAO names: **En** - Mud sole; **Fr** - Sole de vase; **Sp** - Lenguado de aleta.

Local names: East coast sole; Ooskus-tongvis (Ak); Ostküsten-Seezunge (Gr).

Size: To 60 cm.

Fisheries: None at present.

Habitat and biology: Found on mud bottoms, between depths of 10 and 100 m. Feeds on small benthic invertebrates and small fish. There is some doubt if this species occurs in Namibia

***Dicologlossa cuneata* (de la Pylaie in Moreau, 1881)****SOLEIDAE**

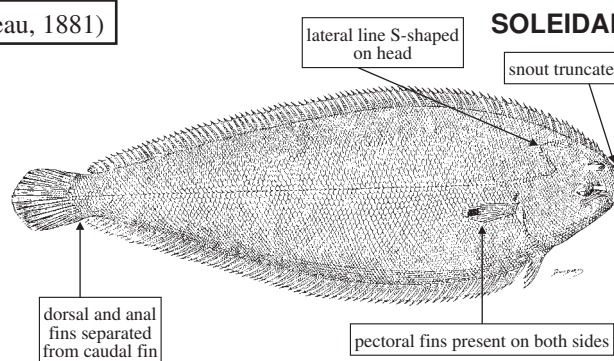
FAO names: **En** - Wedge sole; **Fr** - Céteau; **Sp** - Acedia.

Local names: Keil-tongvis (Ak).

Size: To 30 cm.

Fisheries: Occasionally taken in bottom trawls.

Habitat and biology: Inhabits sand or muddy sand bottoms, from depths of 10 to about 450 m. Feeds mainly on crustaceans, worms, and snails.



***Heteromycteris capensis* Kaup, 1858**

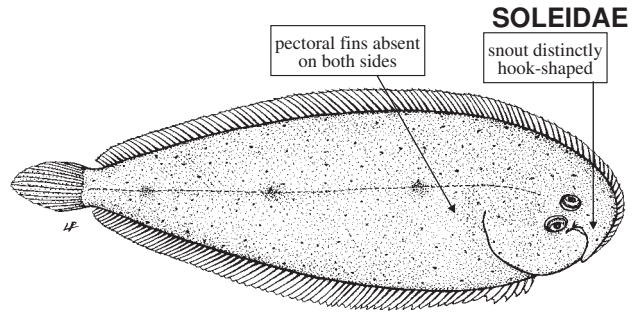
FAO names: **En** - Cape sole; **Fr** - Sole du Cap; **Sp** - Lenguado del Cabo.

Local names: Kaapse-tongvis (Ak).

Size: To 15 cm.

Fisheries: None at present.

Habitat and biology: Shallow waters from depths of 1 to 25 m.

**SOLEIDAE*****Heteromycteris proboscideus* (Chabanaud, 1926)**

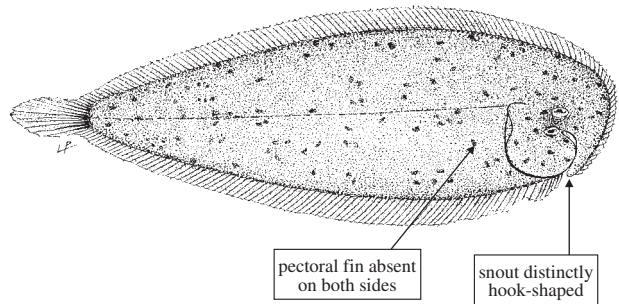
FAO names: **En** - True sole; **Fr** - Céteau trompue; **Sp** - Acedia trompuda.

Local names:

Size: To 10 cm.

Fisheries: None at present.

Habitat and biology: A littoral species, also found in brackish waters.

**SOLEIDAE*****Monochirus luteus* (Risso, 1810)**

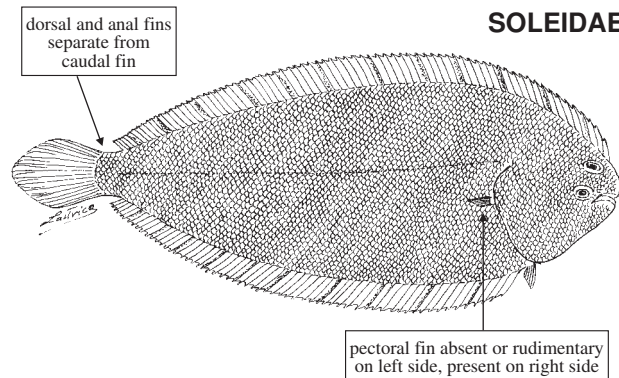
FAO names: **En** - Yellow sole; **Fr** - Sole jaune; **Sp** - Lenguado amarillo.

Local names: Geel tongvis (Ak).

Size: To 10 cm.

Fisheries: None at present.

Habitat and biology: Demersal in depths between 10 and 80 m.

**SOLEIDAE*****Cynoglossus capensis* (Kaup, 1858)**

(plate VIII, 63)

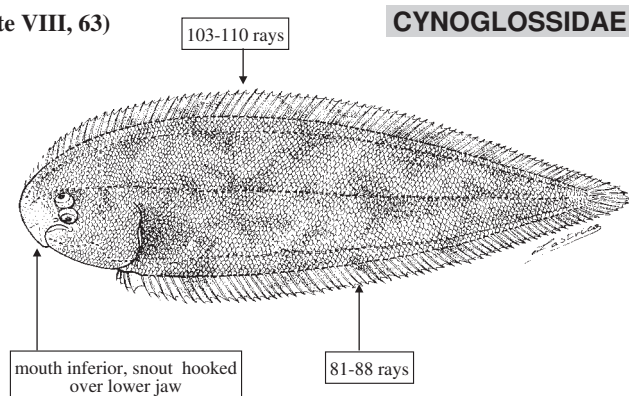
FAO names: **En** - Sand tonguefish; **Fr** - Sole-langue du Cap; **Sp** - Lengua de perro.

Local names: Sand-tongvis (Ak).

Size: 31 cm.

Fisheries: Caught occasionally as bycatch in bottom trawls.

Habitat and biology: A shallow-water species usually found at depths less than about 100 m but also recorded on the continental slope, between 350 and 450 m.

**CYNOGLOSSIDAE**

***Cynoglossus zanzibariensis* Norman, 1939**

(plate VIII, 64)

CYNOGLOSSIDAE

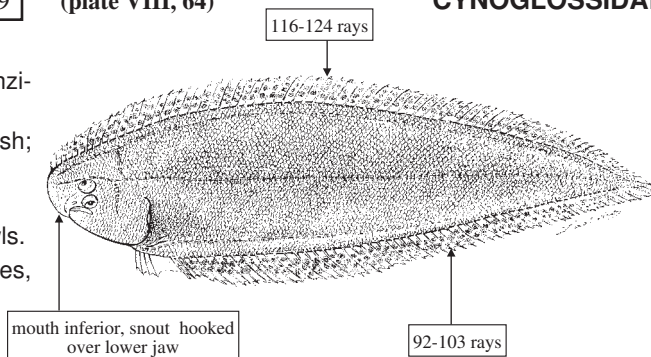
FAO names: **En** - Zanzibar tonguesole; **Fr** - Langue de Zanzibar; **Sp** - Lengua de Zanzibar.

Local names: Redspotted tonguefish; Rooigespikkelde tongvis (Ak).

Size: To 32 cm.

Fisheries: Caught incidentally in bottom trawls.

Habitat and biology: A shallow-water species, mainly on sandy bottoms.

***Symphurus normani* Chabanaud, 1950****CYNOGLOSSIDAE**

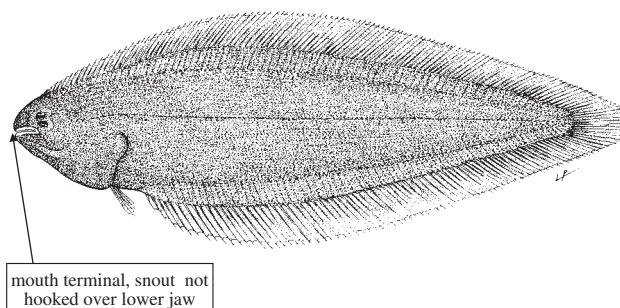
FAO names: **En** - Norman's tonguesole; **Fr** - Plagusie de Norman; **Sp** - Pelada de Norman.

Local names:

Size: To 70 cm.

Fisheries: None at present.

Habitat and biology: Found on mud and sand bottoms from depths of 50 to 100 m. Mainly in the northern part of the area.

***Lagocephalus laevigatus* Linnaeus, 1766****TETRAODONTIDAE**

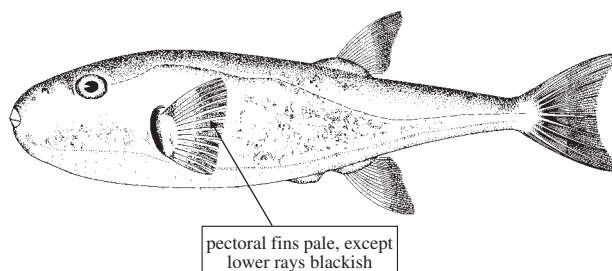
FAO names: **En** - Smooth puffer; **Fr** - Compère lisse; **Sp** - Tamboril mondeque.

Local names: Blaasop (Ak).

Size: To 100 cm.

Fisheries: Poisonous, should not be eaten. Caught incidentally in bottom trawls.

Habitat and biology: Found mainly in coastal waters, to a depth of 180 m.

***Lagocephalus lagocephalus* (Linnaeus, 1758)****TETRAODONTIDAE**

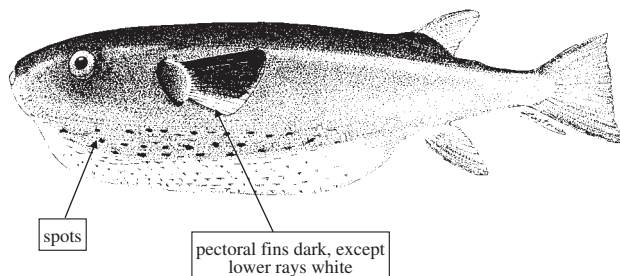
FAO names: **En** - Rabbit puffer; **Fr** - Compère lièvre; **Sp** - Tamboril liebre.

Local names: Oceanic blaasop; Opesee-blaasop (Ak).

Size: To 60 cm.

Fisheries: Poisonous, should not be eaten. Caught incidentally in trawls.

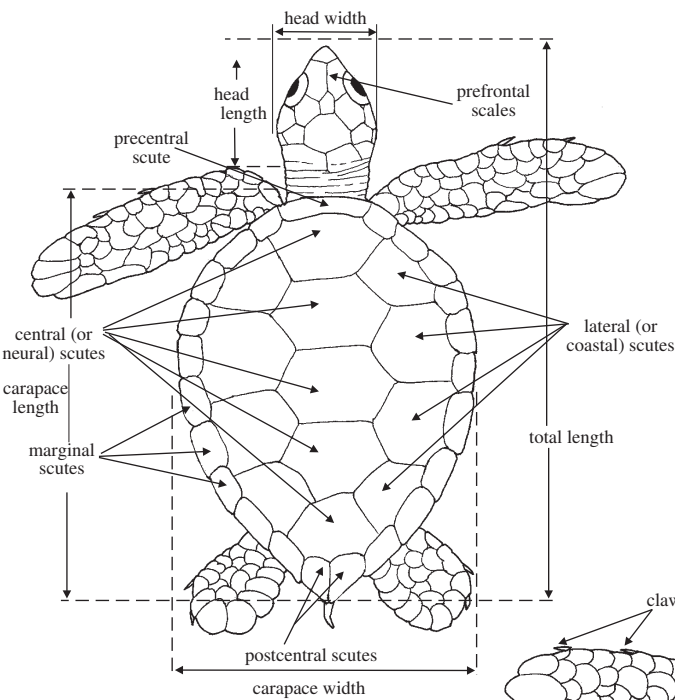
Habitat and biology: A primarily pelagic species, occasionally entering estuaries.



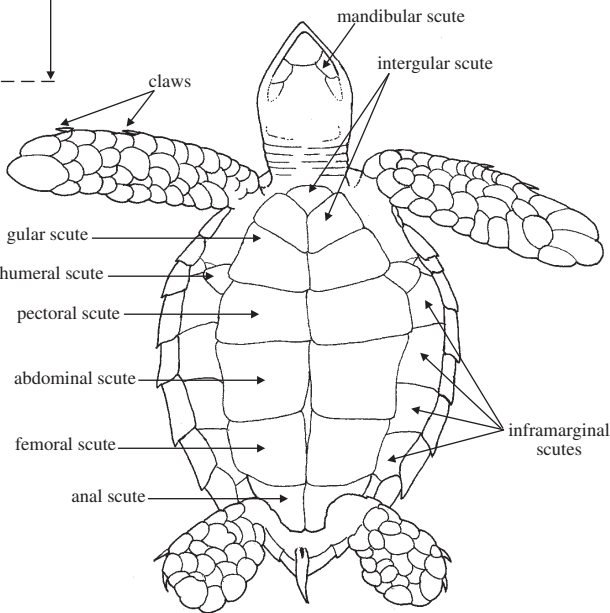
SEA TURTLES

Of the 8 species of sea turtles worldwide, 5 occur in Namibia. Most sea turtle species are considered endangered and are protected under an international agreement. All turtles receive total protection in Namibia. In the past they were incidentally exploited for their fresh meat, their eggs, for ornamental crafts made from their shell, and for leather from their skin. Today they are inadvertently caught in some fisheries. This guide is intended as an aid for conservationists in the management of this endangered group.

TECHNICAL TERMS AND MEASUREMENTS



dorsal view of a juvenile sea turtle
(Family Cheloniidae)



ventral view of a juvenile sea turtle
(Family Cheloniidae)

***Caretta caretta* (Linnaeus, 1758)**

carapace oblong, length greater than width

CHELONIIDAE

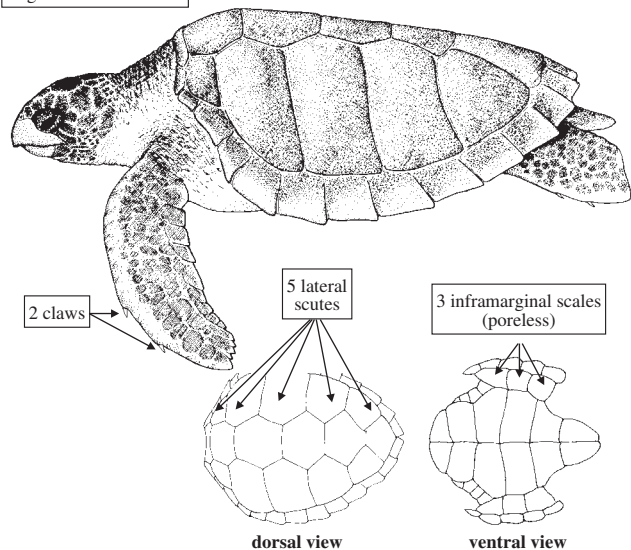
FAO names: **En** - Loggerhead turtle; **Fr** - Tortue caouanne; **Sp** - Caguama.

Local names:

Size: Mean straight carapace length of mature females between 80 and 105 cm.

Fisheries: Caught accidentally by trawlers.

Habitat and biology: Primarily in shallow waters of the continental shelf. Feeds on a wide variety of invertebrates as well as on bony fishes. It is preyed upon by sharks, at all age classes.

***Chelonia mydas* (Linnaeus, 1758)****CHELONIIDAE**

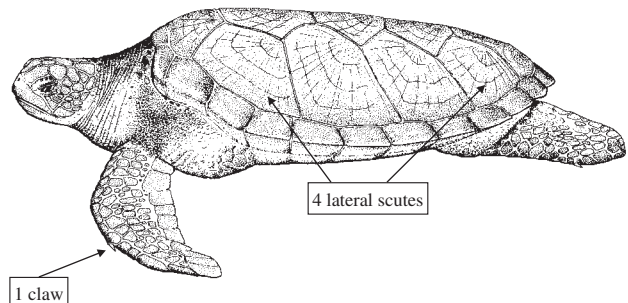
FAO names: **En** - Green sea turtle; **Fr** - Tortue verte; **Sp** - Tortuga blanca.

Local names:

Size: To 140 cm curved carapace length.

Fisheries: Caught inadvertently in trawls.

Habitat and biology: A solitary, nektonic species, sometimes forming feeding aggregations in shallow waters. Feeds, during daytime, on algae and sea grass. High predation on this species occurs at all its life stages, sharks being its worse enemies.

***Eretmochelys imbricata* (Linnaeus, 1766)****CHELONIIDAE**

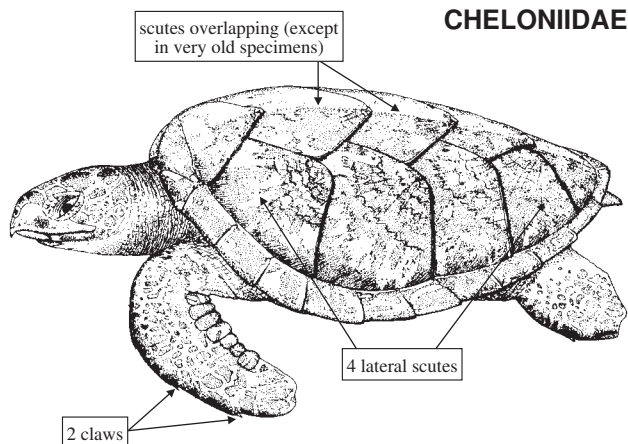
FAO names: **En** - Hawksbill sea turtle; **Fr** - Tortue caret; **Sp** - Tortuga de carey.

Local names:

Size: Adult females measure from 50 to 115 cm straight carapace length.

Fisheries: Elsewhere caught by turning the females while crawling on the beach, by spearing, entangling nets, and incidentally in trawls. This species is particularly valuable because of the scutes covering its carapace which are used in some countries in jewelry (tortoise shell), though not in Namibia.

Habitat and biology: Occur in clear littoral waters. Carnivorous, feeds on a wide variety of invertebrates. It is heavily preyed upon at all life stages.



***Lepidochelys olivacea* (Eschscholtz, 1829)**

FAO names: **En** - Olive ridley turtle; **Fr** - Tortue olivâtre; **Sp** - Tortuga golfina.

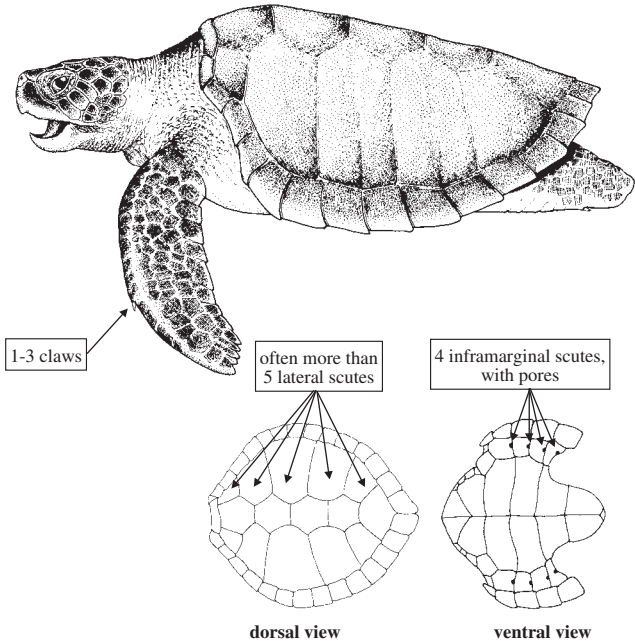
Local names:

Size: Mature specimens between 50 and 75 cm straight carapace length.

Fisheries: Caught inadvertently in some fisheries.

Habitat and biology: Occurs in shallow coastal waters and offshore. Feeds on a wide variety of fishes and invertebrates. Juveniles and adults are preyed upon by sharks.

carapace nearly round, length nearly equal to width

CHELONIIDAE***Dermochelys coriacea* (Vandelli, 1761)**

FAO names: **En** - Leatherback turtle; **Fr** - Tortue luth; **Sp** - Tortuga laud.

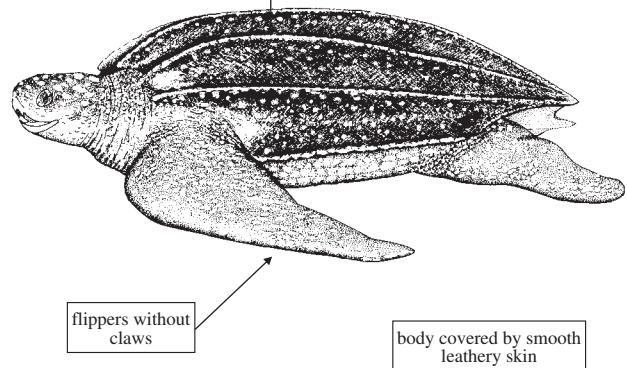
Local names:

Size: Maximum about 270 cm carapace length.

Fisheries: Caught accidentally with drift nets, longines, and in trawls.

Habitat and biology: Pelagic species, approaching the coast for spawning. It feeds on jellyfish, tunicates, and other soft-bodied invertebrates with highest concentrations in the upwelling regions. Preyed upon by sharks and killer whales. Adults are able to stand temperatures as low as 10°C.

longitudinal ridges on carapace

DERMOCHELYIDAE

SEABIRDS

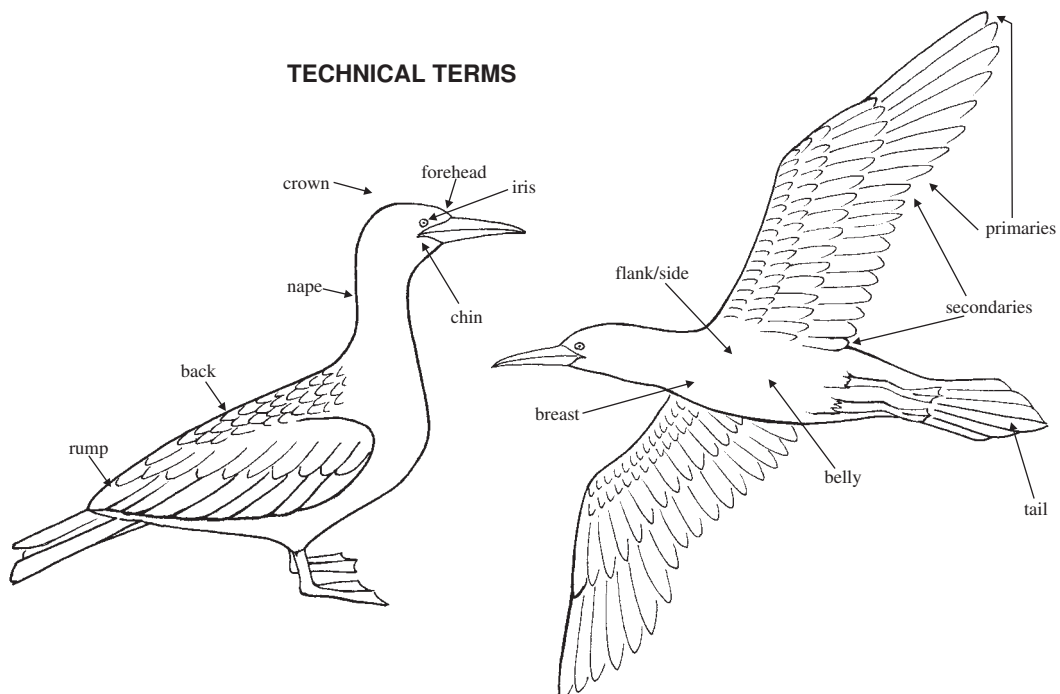
Approximately 62 species of seabirds have been recorded in Namibian waters, 20 of which are only rare vagrants. Twelve species of seabirds breed along the Namibian coast. These are: the jackass penguin, *Spheniscus demersus*; the white pelican, *Pelecanus onocrotalus*; the Cape gannet, *Morus capensis*; the white-breasted cormorant, *Phalacrocorax carbo*; the Cape cormorant, *P. capensis*; the bank cormorant, *P. neglectus*; the crowned cormorant, *P. coronatus*; the kelp gull, *Larus dominicanus*; hartlaub's gull, *L. hartlaubii*; the greyheaded gull, *L. cirrocephalus*; the swift tern, *Sterna bergii*; and the damara tern, *S. balaenarum*. The first 7 of these are significant guano producers and included in this guide. Also included here are 11 species of pelagic seabirds commonly encountered by fishermen at sea.

Seabirds were first exploited in Namibia for ship provisions by European sailors during the 15th century. Exploitation was intensified during the 18th century by sealers and whalers but it was only after 1840 that the commercial value of seabird colonies as guano producers was fully realized. A guano rush followed in 1843-1845 during which hundred of ships called at the islands along the Namibian coast and stripped the accumulated deposits of guano for use as an agricultural fertilizer, mostly in Europe. Seabird breeding was completely disrupted for several years, at least on the main islands (Mercury, Ichaboe, Possession, and Sinclair Islands), and breeding habitats were severely altered during this period. However, soon after the guano rush, seabirds were protected and the islands were managed in order to maximize guano production. In addition, new breeding sites were created with the erection of guano platforms. Guano scraping is still a profitable industry today, yielding more than 2 000 t annually. The populations of guano producing seabirds have fluctuated greatly. The causes for these changes probably include direct disturbance and exploitation by man as well as habitat destruction, fishery induced mortality, and depletion of fish stocks (particularly pilchard). On some islands the recovery of the fur seal population has displaced some seabird colonies.

The non-guano producing pelagic seabirds listed here are non-breeding migrants to the Namibian region. Many disperse from the breeding colonies on the islands of the southern oceans in late summer and follow the cold Benguela current northwards along the southwestern coast of Africa into Namibian waters during the winter months. Therefore, these species tend to be more common during the winter months, although some few individuals may remain throughout the year. A few species arrive during the summer months from the north, while others occur throughout the year. Virtually all pelagic seabirds follow fishing vessels and scavenge offal and discarded fish. Otherwise, their diet consists of krill, fish, salps, squid, and virtually anything else that is available.

All seabirds are protected in Namibian waters. Therefore, this guide is intended to help study and monitor this valuable marine resource in order to manage it wisely.

TECHNICAL TERMS



Spheniscus demersus (Linnaeus, 1758)

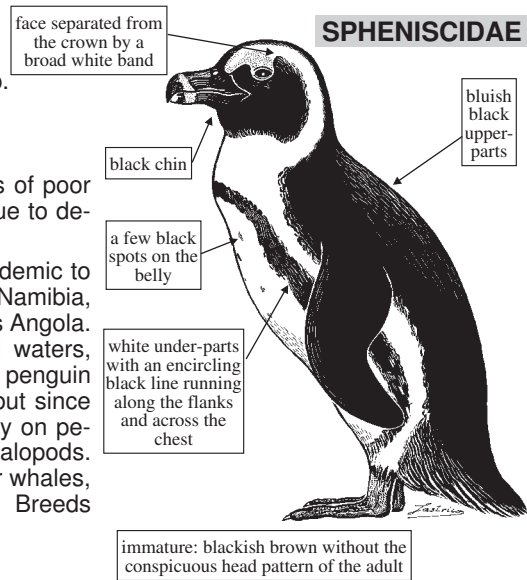
FAO names: En - Jackass penguin; Fr - Manchot du cap.

Local names: African penguin; Pikkewyn (Ak).

Size: Length from 60 to 70 cm; weight, 2.4 to 3.5 kg.

Utilization: Guano producer, although penguin guano is of poor quality. Today, the penguin colonies are not exploited due to decreasing numbers.

Habitat and biology: The only penguin in the area. Endemic to southern Africa. Breeds on islands off South Africa and Namibia, non-breeders and juvenile occasionally disperse as far as Angola. Common around the breeding colonies and in coastal waters, rarely seen further than 10 to 15 km offshore. The jackass penguin feeds predominantly on pilchard (*Sardinops ocellatus*) but since the collapse of the pilchard stocks, penguins feed mainly on pelagic (bearded) goby (*Sufflogobius bibarbatus*) and cephalopods. Penguins are preyed upon by sharks, fur seals, and killer whales, and kelp gulls prey upon chicks and eggs at the colonies. Breeds throughout the year off Namibia.



Diomedea cauta Gould, 1840

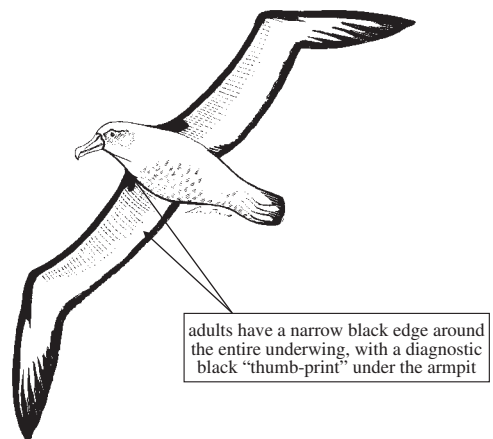
FAO names: En - Shy albatross.

Local names: Whitecapped albatross; Bloubekmalmok (Ak).

Size: Length to 99 cm.

Utilization: None.

Habitat and biology: The shy albatross occurs throughout the southern oceans and is found in Namibian waters at all times of the year. It is the least common of the 3 albatrosses reported in this guide and is more frequent on the outer part of the continental shelf. This species is normally solitary in Namibia, although several shy albatrosses may converge on fishing boats to feed on discarded fish and of-fal. Otherwise feeds on krill, fish, salps, and squid.



Diomedea melanophris Temmick, 1828

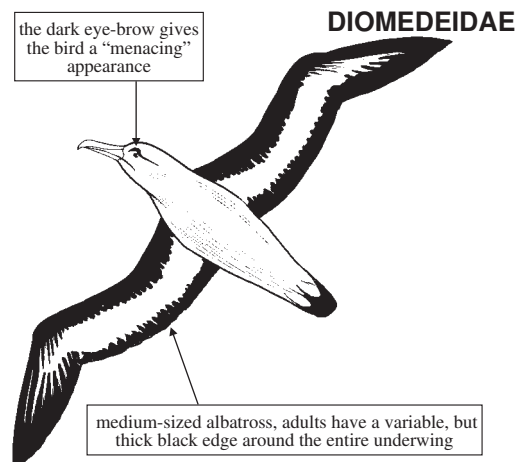
FAO names: En - Black-browed albatross.

Local names: Swartrugmalmok (Ak).

Size: Length from 83 to 95 cm.

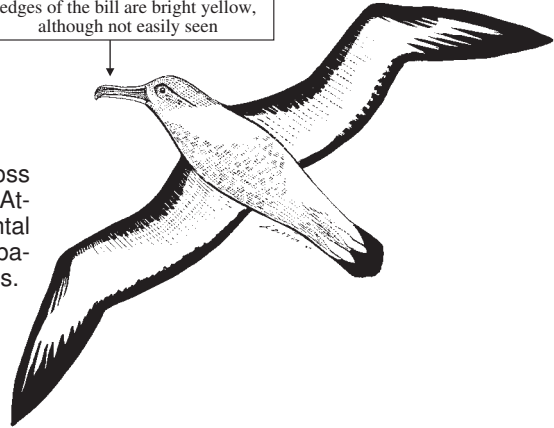
Utilization: None.

Habitat and biology: Circumpolar in the southern oceans the black-browed albatross occurs in Namibian waters throughout the year. Found throughout the shelf area, but occasionally moving close inshore in rough weather. Readily follows fishing vessels to feed on offal and dis-cards, sometimes forming fairly large groups.

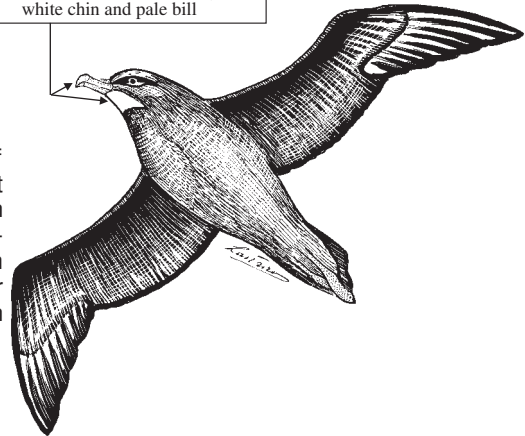


Diomedea chlororhynchos* Gmelin, 1789*FAO names:** En - Yellow-nosed albatross.**Local names:** Geelneusmalmok (Ak).**Size:** Length from 71 to 81 cm.**Utilization:** None.**Habitat and biology:** This is the most common albatross in Namibian waters, it occurs throughout the southern Atlantic and Indian Ocean. Found across the continental shelf, but more common closer inshore than other albatrosses. Frequently congregates around fishing vessels.

a small albatross, the upper and lower edges of the bill are bright yellow, although not easily seen

DIOMEDEIDAE***Procellaria aequinoctialis*, Linnaeus, 1758****FAO names:** En - White-chinned petrel.**Local names:** Cape hen; Witkenpylstormvoël (Ak).**Size:** Length from 51 to 58 cm.**Utilization:** None.**Habitat and biology:** This is the commonest of Namibia's pelagic seabirds and can be seen throughout the year. May occur in large numbers, especially when resting at sea, otherwise dispersed throughout the continental shelf region. This species is frequently seen from the coast. The white-chinned petrel is bolder than other birds closely approaching fishing boats to scavenge on discards and offal.

medium-sized black bird with diagnostic white chin and pale bill

PROCELLARIIDAE***Daption capense* (Linnaeus, 1758)****FAO names:** En - Cape petrel.**Local names:** Pintado petrel, Cape pigeon; Seedulfstormvoël (Ak).**Size:** Length from 38 to 40 cm.**Utilization:** None.**Habitat and biology:** Pintado petrels migrate into Namibian waters during the winter months, and are rarely seen during the summer. This petrel tends to be more gregarious than other common Namibian pelagic seabirds and can form large flocks, although it is usually sparsely distributed across the continental shelf. Readily follows fishing vessels to feed on offal and discards.

striking black and white medium-sized bird

PROCELLARIIDAE

Calonectris diomedea (Scopoli, 1769)

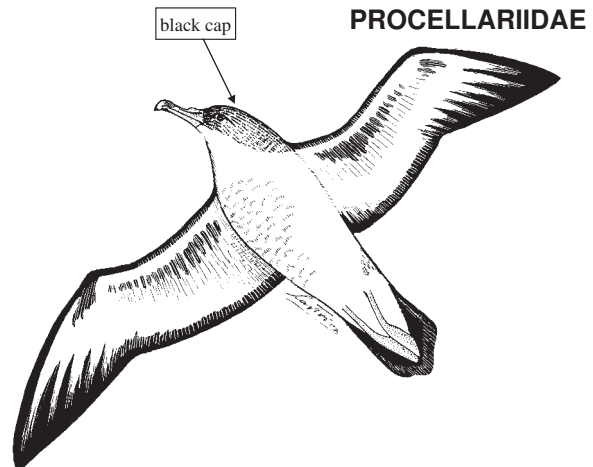
FAO names: En - Cory's shearwater.

Local names: Geelbekpylstormvoël (Ak).

Size: Length from 46 to 53 cm.

Utilization: None.

Habitat and biology: Cory's shearwaters migrate from the Red Sea and Mediterranean region southwards into Namibian waters and hence occur mostly during the summer months. Some few individuals may remain throughout the year. Found throughout the continental shelf this species often occurs in large concentrations either when resting or at a suitable food source, such as fishing vessels.



Puffinus griseus Gmelin, 1789

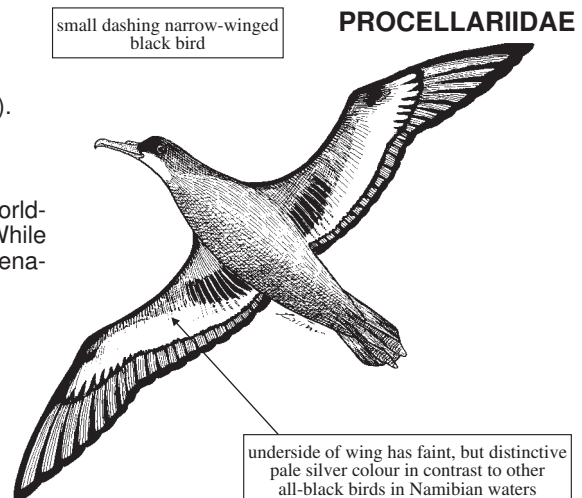
FAO names: En - Sooty shearwater.

Local names: Malbaatjie, Grysvlerk-pylstormvoël (Ak).

Size: Length from 40 to 46 cm.

Utilization: None.

Habitat and biology: The sooty shearwater occurs worldwide and is an abundant all-year visitor to Namibia. While this species follows fishing vessels, it is often less tenacious than many of its larger competitors.



Oceanites oceanicus (Kuhl, 1820)

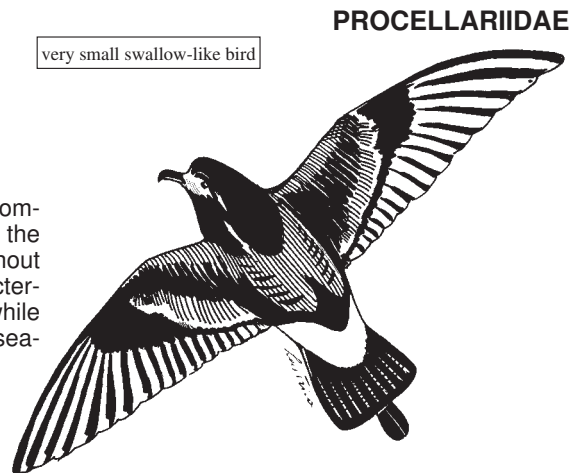
FAO names: En - Wilson's storm-petrel.

Local names: Geelpootstormswaël (Ak).

Size: Length from 15 to 19 cm.

Utilization: None.

Habitat and biology: This small dark seabird is a common all-year visitor to Namibia and migrates between the southern and northern hemisphere. It is found throughout Namibian continental shelf waters feeding in a characteristic manner of pattering its feet on the water surface while hovering. Not as strongly attracted to ships as other seabirds.



***Pelecanus onocrotalus* Linnaeus, 1758**

FAO names: En - White pelican; Fr - Pelican blanc.

Local names: Pelican.

Size: Length from 140 to 178 cm; weight from 9 to 15 kg.

Utilization: Guano producer.

Habitat and biology: Rare at sea, usually confined to sheltered bays and inland waters. On the coast the white pelican breeds on guano platforms near Walvis Bay and feeds on fish and crustaceans.

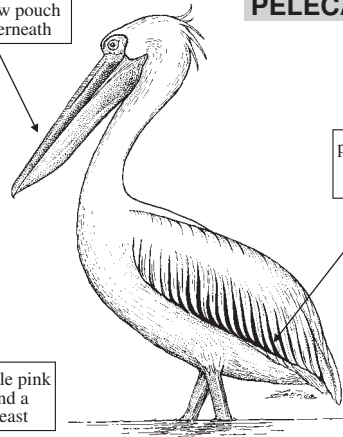
Other similar species occurring in the area: The vagrant pinkbacked pelican *Pelecanus rufescens* is smaller with grey wings, pale yellow bill, and grey pouch.

bill pink with a yellow pouch underneath

PELECANIDAE

primaries and secondaries black

huge white bird with a pale pink tinge when breeding and a yellow patch on the breast

***Morus capensis* (Lichtenstein, 1823)**

FAO names: En - Cape gannet; Fr - Fou du cap.

Local names: Gannet; Malgas (Ak).

Size: Length to about 90 cm; weight to 2.6 kg.

Utilization: One of the main guano producers in the area.

Habitat and biology: Endemic to southern Africa. Breeds on islands off South Africa and Namibia and disperses to Mozambique in the Indian Ocean and to the gulf of Guinea in the Atlantic. Feeds predominantly on anchovy (*Engraulis capensis*) since the collapse of the pilchard stocks. Scavenges behind fishing vessels. Nests in summer in dense colonies on Mercury, Ichaboe, and Possession Islands. Offshore found mainly in vicinity of pilchard stocks. Population of dark juveniles increase to the north further away from breeding islands.

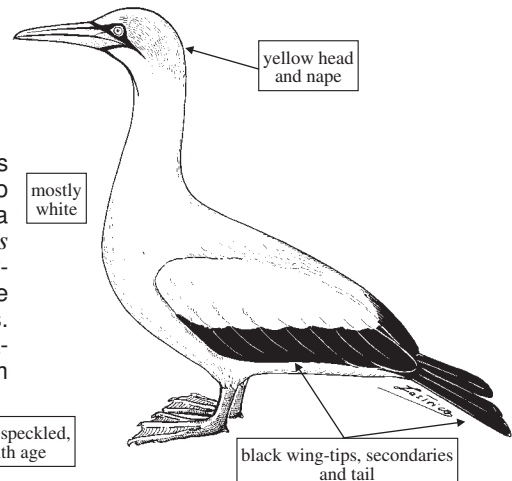
immature: brownish with dark wings and tail

SULIDAE

yellow head and nape

mostly white

immature: all dark and speckled, becoming lighter with age



black wing-tips, secondaries and tail

***Phalacrocorax capensis* (Sparrrman, 1788)**

FAO names: En - Cape cormorant; Fr - Cormoran du cap.

Local names: Cormorant; Duiker (Ak).

Size: Length to 64 cm; weight from 1.1 to 1.3 kg.

Utilization: One of the main guano producers in the area.

Habitat and biology: The Cape cormorant is the most abundant cormorant in Namibian waters. Endemic to southern Africa, but disperses as far as Zaire. Feeds mainly on pelagic goby and anchovy but also pilchard when available. Highly gregarious, flying in longlines over the sea. Nests in large numbers on islands and guano platforms, mainly in spring and summer. Rarely found more than about 10 km from land.

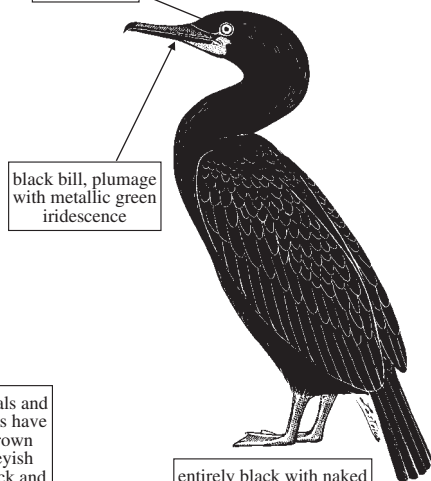
iris turquoise

PHALACROCORACIDAE

black bill, plumage with metallic green iridescence

immature individuals and non-breeding adults have a dull blackish brown plumage with greyish brown chin and neck and dull brown lores

entirely black with naked golden yellow lores when breeding



***Phalacrocorax carbo* (Linnaeus, 1758)**

FAO names: En - White-breasted cormorant; Fr - Grand cormoran.

Local names:

Size: Length to 90 cm; weight from 1.0 to 2.2 kg.

Utilization: Guano producer.

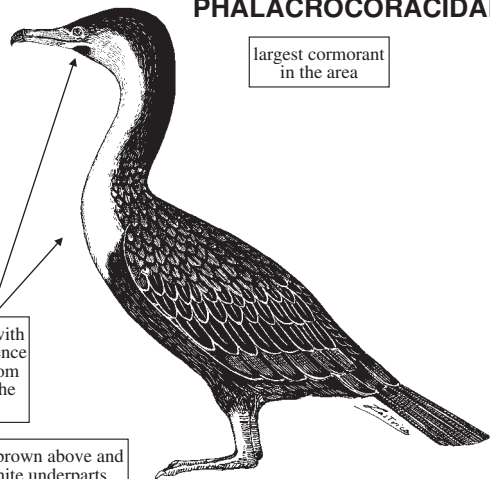
Habitat and biology: Nests on rocky islands guano platforms and other man-made structures. Feeds on larger fish than other cormorants in the area. Rarely found far from the coast.

PHALACROCORACIDAE

largest cormorant
in the area

black plumage with
greenish iridescence
above, white from
chin to below the
chest

immature: dark brown above and
entirely off-white underparts

***Phalacrocorax coronatus* (Wahlberg, 1855)**

FAO names: En - Crowned cormorant.

Local names:

Size: Length from 54 cm; weight to 0.8 kg.

Utilization: Guano producer.

Habitat and biology: Restricted to the Benguela system, nests on rocky islands and cliffs. Feeds inshore, often in kelp beds, mainly on small bottom dwelling fish and crustaceans.

PHALACROCORACIDAE

red iris

smallest cormorant
in the area

entirely black plumage with
conspicuous crest, more
prominent than that of the
bank cormorant;
orange-yellow bill and
yellow naked lores when
breeding

***Phalacrocorax neglectus* (Wahlberg, 1855)**

FAO names: En - Bank cormorant.

Local names:

Size: Length to 75 cm; weight to 1.8 kg.

Utilization: Guano producer.

Habitat and biology: Distribution restricted to the Benguela system. Nests on rocky islands, mainly in winter. Feeds on pelagic shoaling fish, mainly pelagic goby. Rarely found far from the coast.

PHALACROCORACIDAE

iris orange above,
green below

short crest when
breeding

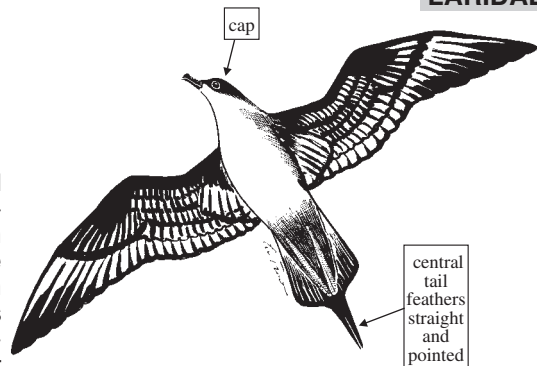
completely
black, with
a white
rump when
breeding

larger than the cape
cormorant with no
yellow on the face

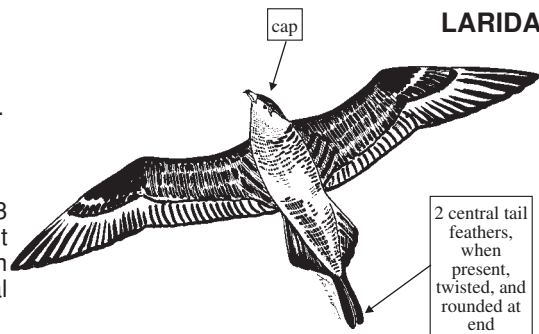


Stercorarius parasiticus* (Linnaeus, 1758)*FAO names:** En - Arctic skua.**Local names:** Arctic skua; Arktiese roofmeeu (Ak).**Size:** Length from 46 to 67 cm.**Utilization:** None.

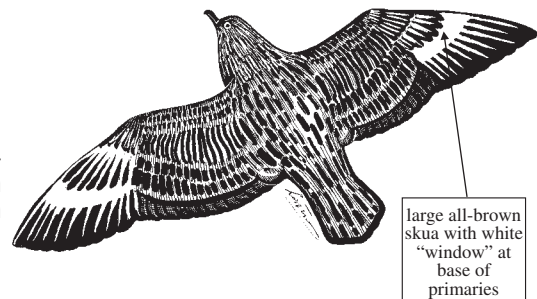
Habitat and biology: This migrant from arctic and sub-arctic regions is a fairly common summer visitor occurring more frequently in the north of the country than further south. Some few birds may remain during the winter months. This skua occurs closer inshore than others, often resting on land. This species readily mobs and steals from gulls and particularly terns, often several birds hunting together. Frequents fishing boats for offal and discarded fish.

**LARIDAE*****Stercorarius pomarinus* (Temminck, 1815)****FAO names:** En - Pomarine skua.**Local names:** Pomarine skua; Knopstertroofmeeu (Ak).**Size:** Length from 65 to 78 cm.**Utilization:** None.

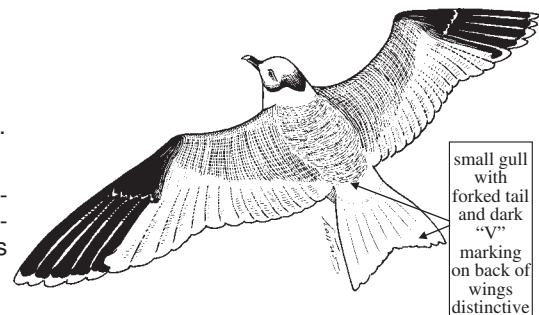
Habitat and biology: This is the least common of the 3 skuas in this guide. It occurs throughout the region, but normally only in summer. Normally found farther from shore than the Arctic skua, but still essentially a coastal bird. Mobs gulls and terns and visits fishing vessels.

**LARIDAE*****Catharacta antarctica* (Brunnich, 1764)****FAO names:** En - Subantarctic skua.**Local names:** Subantarctic skua; Bruinroofmeeu (Ak).**Size:** Length from 61 to 66 cm.**Utilization:** None.

Habitat and biology: The subantarctic skua is a common all-year visitor, although more frequently seen in winter. This skua tends to occur farther from shore than the previous 2 species. More solitary than other skuas, but still an aggressive scavenger.

**LARIDAE*****Larus sabini* Sabine, 1818****FAO names:** En - Sabine's gull.**Local names:** Sabine's gull; Mikstertmeeu (Ak).**Size:** Length from 30 to 36 cm; weight from 1.6 to 1.8 kg.**Utilization:** None.

Habitat and biology: This species is an uncommon visitor from polar regions to Namibia, although large numbers may be seen close to shore in the south. Feeds mainly on marine invertebrates.

**LARIDAE**

MARINE MAMMALS

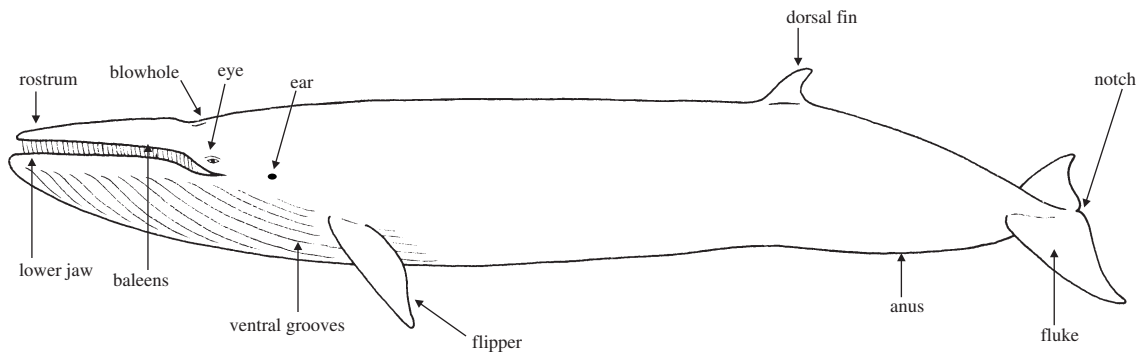
Order CETACEA - Whales and Dolphins

Stranded cetaceans have been used by Khoikhoi people along the Namibian coast for millennia. They provided these nomadic groups with food and even building materials as the bones of large whales were used to build huts on this treeless desert coast. It is only after the arrival of Europeans that the first attempts to catch cetaceans were made. Whaling developed quickly during the second half of the 18th century with the arrival of American and European whalers in search of right whales. By the middle of the 19th century, the southern right whale was driven to virtual extinction in the area and whalers turned their attention to the humpback whale whose populations also soon began to decline. The end of the 19th century marks the beginning of modern industrial whaling using steam boats and cannon harpoons. The intensive exploitation of all species of large whales throughout their range began, and Namibian waters were no exception. During the first 30 years of this century sperm whales, humpback whales, fin whales, blue whales, and other species were caught and processed at whaling stations along the Namibian coast. The local populations soon declined dramatically and shore-based whaling was abandoned in favour of large whale factory ships. The worldwide over-exploitation of most stocks followed, leading to the global downfall of the whaling industry. Today, most species once exploited in Namibian waters are still very rare and all cetaceans are fully protected in the area.

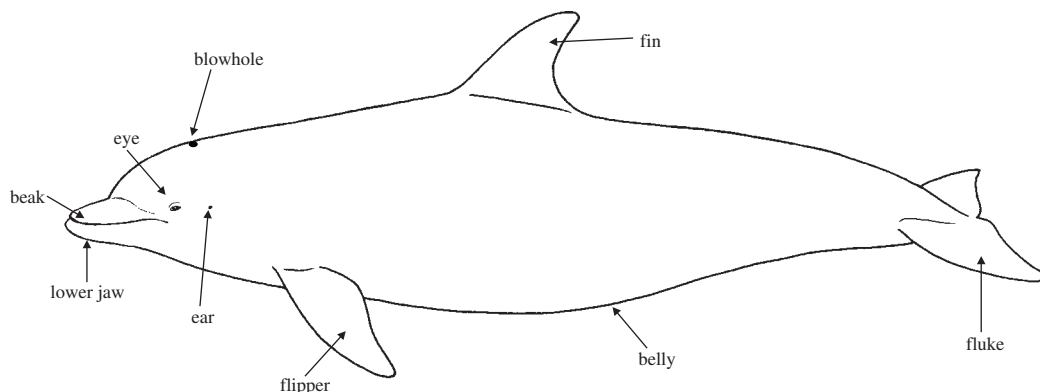
The order Cetacea is subdivided into 2 groups: the Mysticeti (baleen whales) and the Odontoceti (toothed whales, dolphins, and porpoises). The suborder Mysticeti comprises 4 families and 11 species, 8 of which can be found in Namibian waters. The suborder Odontoceti comprises 9 families and about 65 species, 23 of which have been recorded in Namibian waters.

TECHNICAL TERMS

MYSTICETI



ODONTOCETI



Suborder MYSTICETI - Baleen Whales

Eubalaena australis Desmoulin, 1822

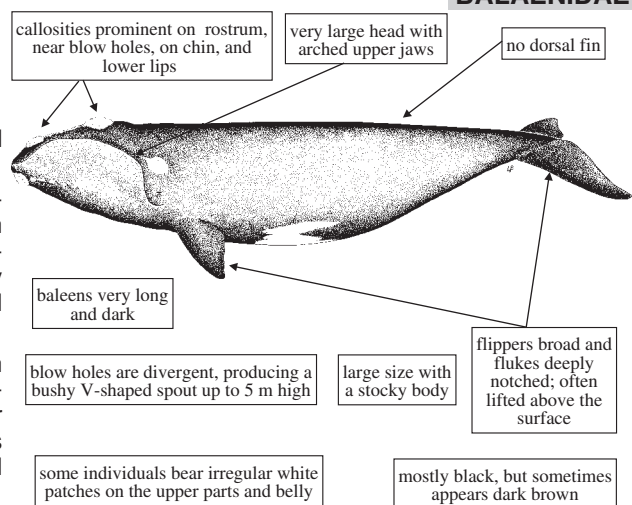
FAO names: **En** - Southern right whale; **Fr** - Baleine australe; **Sp** - Ballena franca austral.

Local names:

Size: Average length 15 m (up to 18 m) and weight up to 96 t.

Utilization: Southern right whales were exploited in the area by American and European whalers since the 18th century until virtual extermination. Legally protected since 1935, they are recovering in southern Africa, but are still rare in Namibia.

Habitat and biology: Circumpolar between 20° S and 55° S, the southern right whale congregates in shallow coastal waters and bays for calving and probably mating. Calving interval is about 3 years. This species feeds on small planktonic crustaceans, mainly copepods.

*Caperea marginata* (Gray, 1846)

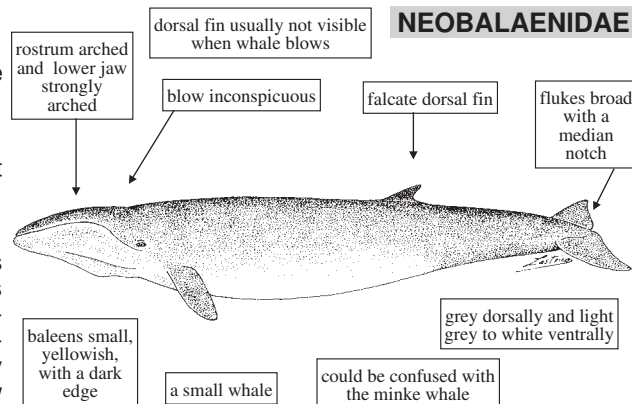
FAO names: **En** - Pygmy right whale; **Fr** - Baleine pygmée; **Sp** - Ballena franca pigmea.

Local names:

Size: Length about 5 m (up to 6.4 m) and weight about 4.5 t.

Utilization: None.

Habitat and biology: Rarely seen, this species is nevertheless widespread in temperate waters of the Southern Hemisphere but never abundant. In the area it may be found inshore, sometimes in sheltered shallow bays. It is poorly known and in Namibia reported only from a few strandings in scattered bays.

*Balaenoptera physalus* (Linnaeus, 1758)

FAO names: **En** - Fin whale; **Fr** - Rorqual commun; **Sp** - Rorqual común.

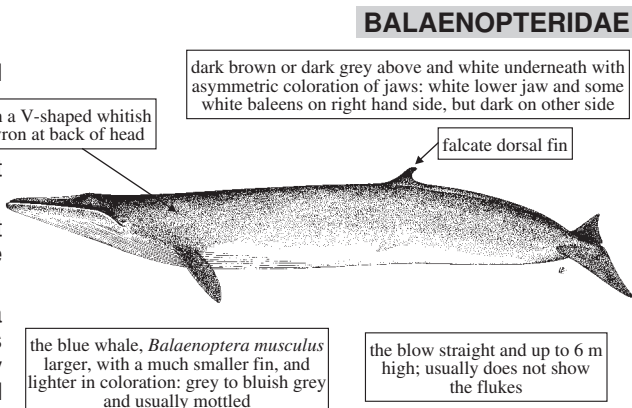
Local names:

Size: Length over 20 m (up to 27 m) weight around 40 t (up to 69 t).

Utilization: Extensively hunted, it was caught regularly in Namibian waters together with the blue whale at the beginning of the century.

Habitat and biology: The fin whale has a worldwide distribution, migrating to low latitudes in winter when calving and mating occurs. They feed on euphausiids, small shoaling fish, and squid. Recent records in Namibia have been between November and March.

Remarks: The sei whale may also occur in Namibia but since it is difficult to distinguish it from the fin whale, reports of the fin whale may have been sei whales.



***Balaenoptera acutorostrata* Lacépède, 1804**

FAO names: En - Minke whale; Fr - Petit rorqual; Sp - Rorcual enana.

Local names:

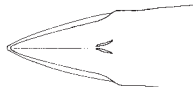
Size: Length 8 to 10 m, weight 6 to 7 t.

Utilization: None in the area.

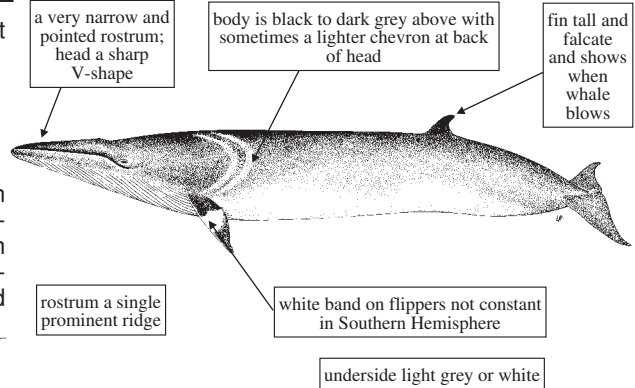
Habitat and biology: Very wide distribution from the tropics to polar waters of both hemispheres. It often comes close inshore and in bays. Not shy, the minke whale often approaches boats. Feeds on euphausiids and small fish.



side view of head



dorsal view of head

**BALAENOPTERIDAE*****Megaptera novaeangliae* (Borowski, 1781)**

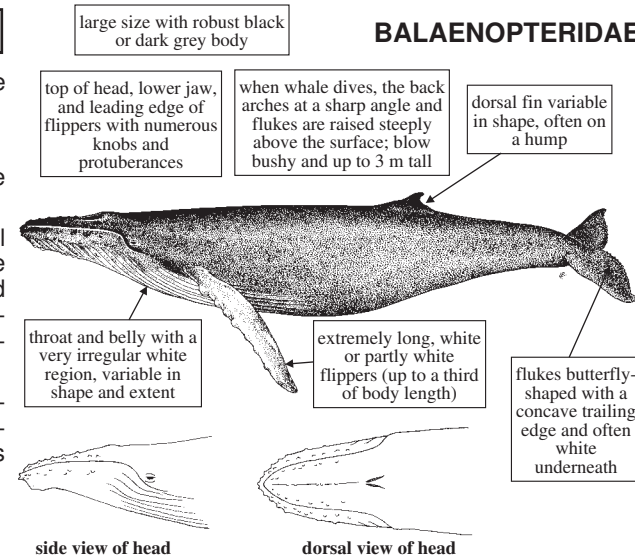
FAO names: En - Humpback whale; Fr - Baleine á bosse; Sp - Rorcual jorobada.

Local names:

Size: Length about 15 m (up to 18 m), average weight 35 t (up to 48 t).

Utilization: Namibian waters were a well known hunting ground for this whale since the 19th century. They were extensively exploited by European and American whalers at the beginning of this century from shore-based whaling stations. It has been protected since 1964.

Habitat and biology: Has a very wide distribution in all oceans and undertakes extensive seasonal migrations wintering in the tropics. It feeds on krill (euphausiids) and small shoaling fish.

**BALAENOPTERIDAE****Suborder ODONTOCETI - Toothed Whales and Dolphins*****Physeter catodon* Linnaeus, 1758**

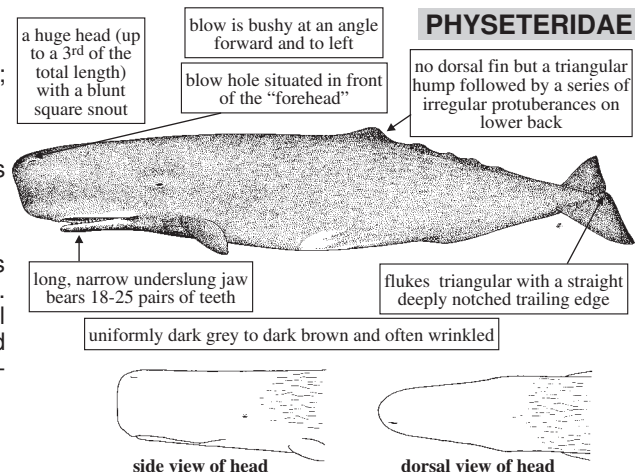
FAO names: En - Sperm whale; Fr - Cachalot; Sp - Cachalote.

Local names:

Size: Males around 15 m (up to 18 m), females around 11 m.

Utilization: Has been hunted in all oceans.

Habitat and biology: Widely distributed, males and females show a different migratory pattern. When not breeding males are solitary or in small groups while females and juveniles form mixed schools. The sperm whale is a deep diver feeding primarily on squid.

**PHYSETERIDAE**

***Orcinus orca* (Linnaeus, 1758)**

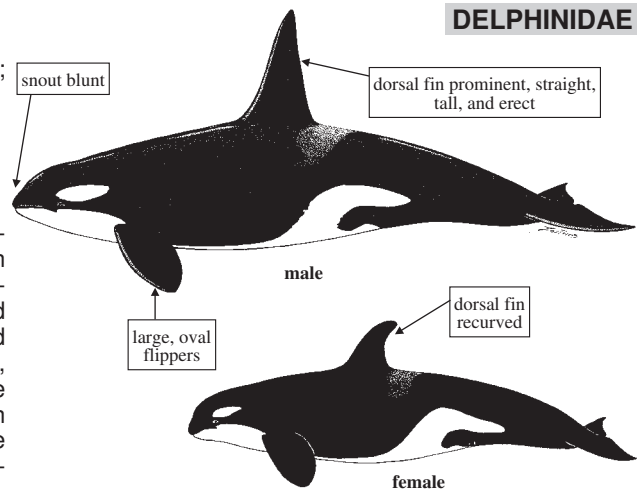
FAO names: En - Killer whale; Fr - Orque; Sp - Orca.

Local names:

Size: To almost 10 m in length and 10 t.

Utilization: None in the area.

Habitat and biology: This species is widespread throughout the world and most common in nearshore waters. They are very fast swimmers and feed on fish, cephalopods, and warm-blooded prey such as seals, whales, and dolphins; they also occasionally eat seabirds, penguins, and turtles. In relation to other large marine mammals, they are fairly common in Namibia. Killer whales have a very distinctive colour pattern and dorsal-fin shape and therefore are easily identified.



black-and-white pattern very distinctive, with a white oval patch above and behind eye, and white area on underside of flukes, head, and belly with a broad white lobe reaching up and back; a light grey patch on back behind dorsal fin

DELPHINIDAE***Globicephala melas* (Traill, 1809)**

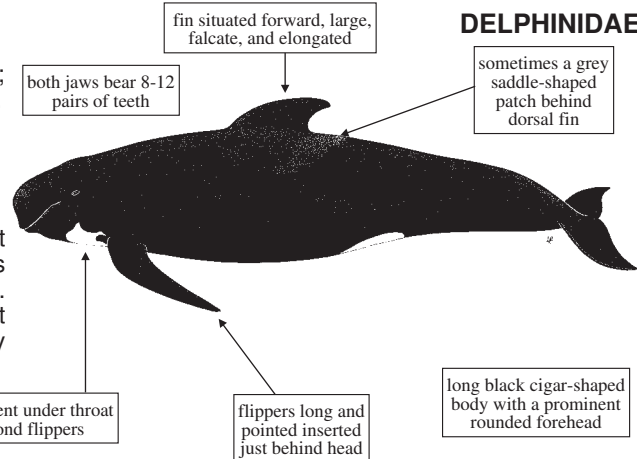
FAO names: En - Longfinned pilot whale; Fr - Globicéphale noir; Sp - Calderón comun.

Local names:

Size: 5 to 8 m in length and weight up to 3.5 t.

Utilization: None in the area.

Habitat and biology: The longfinned pilot whale is widely distributed in temperate waters and in the area often seen at the shelf margin. Most of the time it forms fairly large schools. It feeds primarily on squid. Group size normally 20 to 50 individuals.

**DELPHINIDAE*****Lagenorhynchus obscurus* (Gray, 1828)**

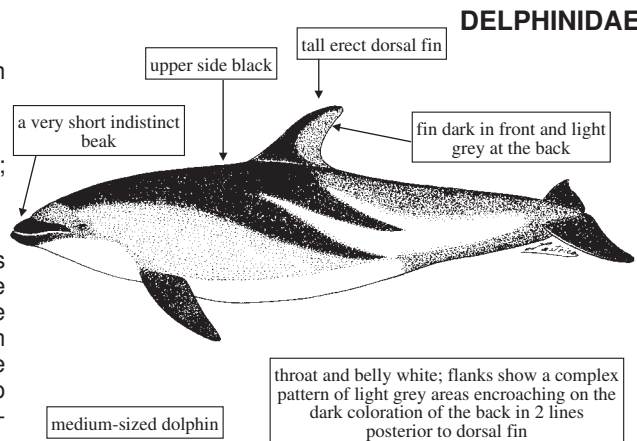
FAO names: En - Dusky dolphin; Fr - Dauphin sombre; Sp - Delfín obscuro.

Local names:

Size: Average length 1.4 to 1.8 m (up to 2.1 m); Weight around 120 kg and up to 140 kg.

Utilization: None in the area.

Habitat and biology: The dusky dolphin is widely distributed in temperate waters of the Southern Hemisphere, particularly along the coasts. It is the most abundant cetacean in Namibian waters and occurs mostly over the shelf and inshore. The group size usually is 2 to 8 individuals but this varies up to several hundred. It occasionally associates with other cetaceans. It feeds on fish and cephalopods.

**DELPHINIDAE**

Tursiops truncatus* (Montagu, 1821)*DELPHINIDAE**

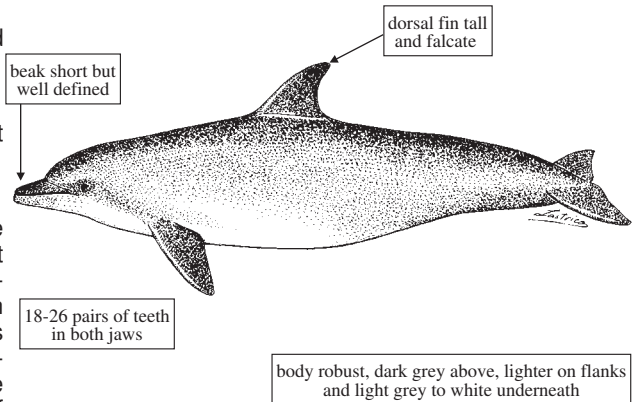
FAO names: **En** - Bottlenose dolphin; **Fr** - Grand dauphin; **Sp** - Tursiön.

Local names:

Size: Length about 3 m (up to 4 m); weight about 200 kg.

Utilization: None in the area.

Habitat and biology: Widespread in temperate waters of both hemispheres. This species is not shy and is usually seen in small groups, sometimes associated with other species. In Namibian waters the bottlenose dolphin has been seen offshore and there is a resident population inshore between Walvis Bay and Cape Cross. Bottlenose dolphins feed on a variety of prey including fish and squid.

***Lissodelphis peronii* (Lacepède, 1804)****DELPHINIDAE**

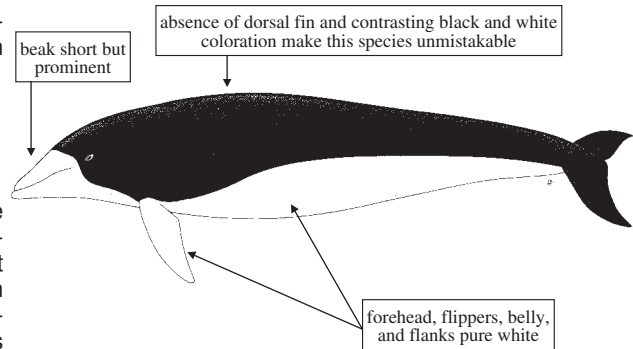
FAO names: **En** - Southern right whale dolphin; **Fr** - Dauphin aptère austral; **Sp** - Delfín liso austral.

Local names:

Size: Length 1.8 to 2.4 m, weight 60 to 80 kg.

Utilization: None in the area.

Habitat and biology: The southern right whale dolphin has a circumpolar distribution in temperate cool waters of the Southern Hemisphere. It forms large schools, sometimes more than 1 000 animals. In Namibian waters it occasionally associates with the dusky dolphin. It feeds on fish (Myctophidae) and squid.

***Cephalorhynchus heavisidii* (Gray, 1828)****DELPHINIDAE**

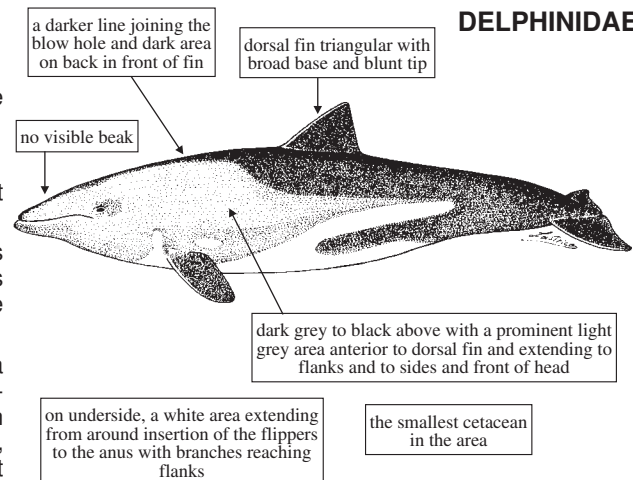
FAO names: **En** - Heaviside's dolphin; **Fr** - Dauphin d' Heaviside; **Sp** - Delfín de Heaviside.

Local names:

Size: Average length around 1.3 m, weight about 40 kg.

Utilization: None in the area. The heaviside's dolphin is susceptible to entanglement in nets and possibly incidental catch in the purse-seine fishery.

Habitat and biology: Endemic to the Benguela system, the Heaviside's dolphin is fairly common in southern Namibian waters. It is seen mostly within 5 miles from the shore and in bays, in small groups, usually of 2 to 7 individuals. It feeds on small fish and cephalopods.

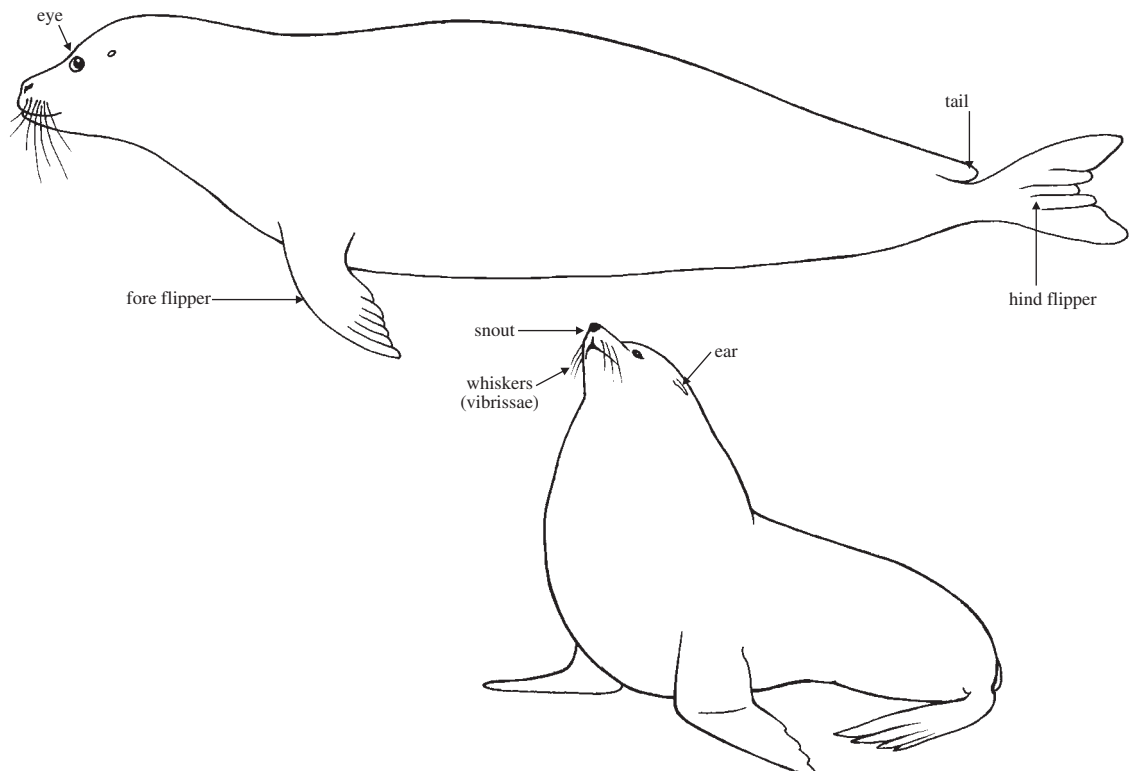


Order PINNIPEDIA - Seals

The South African fur seal, *Arctocephalus pusillus pusillus*, was extremely abundant along the Namibian coast when the first Europeans visited the area. The coastal Khoikhoi people relied on the seals as a source of food and pelts. During the 18th century, sealing developed into the first large scale "fishery" in the region, with the arrival of American and European sealers. The South African fur seal was hunted for its valuable pelt which were traded in China and later on the European and North American markets. Indiscriminate and uncontrolled exploitation soon brought the species to the brink of extinction. In the 19th century, at least 23 island colonies had been eradicated along the Namibian and South African coast. At that time, interest in guano exploitation prevented the seal population from recovering significantly despite a reduction in exploitation. It is only during the 20th century that control on the exploitation permitted the seal population to recover and the sealing industry to flourish again. About 2 million seals have been exploited in Namibia since the beginning of the century while the population was allowed to increase from very low numbers to about 750 000. Since 1984, with the collapse of the world market for furs, sealing has become a marginal activity. Apart from furs, seal products include leather, oil, meat, and carcass-meal. In addition, there is a profitable market in the Far East for male genitalia as a supposed aphrodisiac. The recent decrease in seal exploitation has revived the concern about the potential impact of the seal population on commercial fish stocks.

The Order Pinnipedia (seals) is represented in the area by members of 2 families: the Otariidae which include fur seals and sea lions, and the Phocidae which include true seals (including elephant seals). Only 1 seal, the South African fur seal *Arctocephalus pusillus pusillus* breeds on the Namibian coast. The subantarctic fur seal *Arctocephalus tropicalis* is a very rare vagrant and not included in the guide. The southern elephant seal *Mirounga leonina* is also a rare vagrant but occurs more regularly and is included in this guide. In addition, the skull of a leopard seal was discovered in the sand at Sandwich Harbour.

TECHNICAL TERMS



Arctocephalus pusillus pusillus* (Schreber, 1776)*OTARIIDAE**

FAO names: **En** - South African fur seal; **Fr** - Otarie du cap; **Sp** - Lobo marino de dos pelos de Sudafrica.

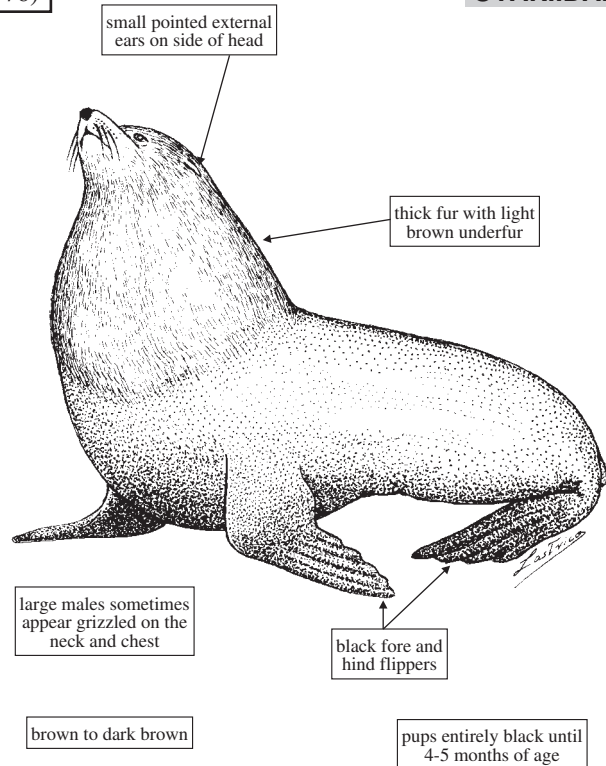
Local names: Seal, sea dog; Rob (Ak).

Size: Length: males up to 2.2 m, females around 1.6 m. Weight: males around 200 kg (up to 300 kg), females 60 to 70 kg.

Utilization: This species has been harvested for more than 2 centuries, primarily for pelts; the most valuable being 8 to 10 months-old juveniles.

Habitat and biology: Common in the Benguela system, the South African fur seal can be seen up to 200 km offshore but is mostly concentrated over the shelf and inshore areas. It breeds in dense colonies on rocky islands and on the mainland between mid November and the beginning of January. The pups are weaned at about 10 months of age. It is preyed upon by sharks and killer whales at sea and by jackals and brown hyenas on the mainland. The diet includes at least 11 species of fish, some crustaceans, and squids. Some individual seals prey on sea birds (particularly jackass penguins).

Other similar species occurring in the area: The rare vagrant subantarctic fur seal *Arctocephalus tropicalis* is smaller, usually darker on the back and has a light brown yellow face fore-neck and upper-chest. In addition, adult males have a short black crest on top of the head.

***Mirounga leonina* (Linnaeus, 1758)****PHOCIDAE**

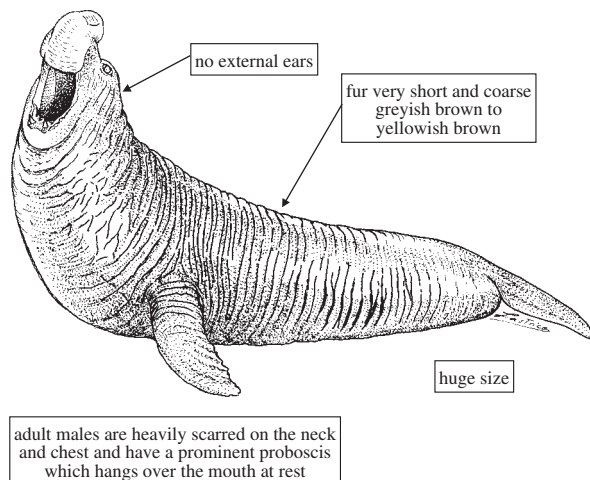
FAO names: **En** - Southern elephant seal; **Fr** - Elephant de mer; **Sp** - Foca elephante del sur.

Local names:

Size: Length: males 4.5 to 6.5 m; females 3 to 4 m. Weight: males up to 3 500 kg; females up to 800 kg.

Utilization: None in the area, but have been used by Khoikhoi tribes. Has been heavily exploited on the breeding grounds, mainly for oil.

Habitat and biology: When not breeding this seal disperses over a large oceanic area in the cold waters of the Southern Hemisphere. It is a rare but regular vagrant along the Namibian coast. It breeds in dense colonies on subantarctic islands. This seal is rarely seen at sea as it spends very little time on the surface. It is a very deep diver feeding mainly on squid, but some fish is also taken. Elephant seals are preyed upon by killer whales and great white sharks.



REFERENCES

The following list of references includes specific papers cited in the Introduction and remarks on major resource groups, and other general references that pertain to marine resources of Namibia.

- Anon. 1990-1993. *Surveys of the fish resources of Namibia. Cruise reports 'Dr. Fridtjof Nansen'*. Ministry of Fisheries and Marine Resources, Swakopmund, Republic of Namibia; Institute of Marine Research Bergen, Norway.
- Anon. 1991. *Towards responsible development of the fisheries sector*. Ministry of Fisheries and Marine Resources, Republic of Namibia.
- Anon. 1998. *The Commercial Sampling Programme. Grade One Observer Manual*. Ministry of Fisheries and Marine Resources. Walvis Bay, Republic of Namibia.
- Chapman, P. and L.V. Shannon. 1985. The Benguela ecosystem. Part II. Chemistry and related processes. *Oceanogr. Mar. Biol. Ann. Rev.* 23: 183-251.
- Cohen, D. M., T. Inada, T. Iwamoto, and N. Scialabba. 1990. FAO species catalogue. Vol. 10. Gadiform fishes of the world. An annotated and illustrated catalogue of cods, hakes, grenadiers and other gadiform fishes known to date. *FAO Fish. Synop.* (125) Vol.10: 1-442.
- Compagno, L.J.V. 1984a. FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish. Synop.* (125) Vol. 4, Pt. 1: 249 p.
- Compagno, L.J.V. 1984b. FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 2. Carcharhiniformes. *FAO Fish. Synop.* (125) Vol. 4, Pt. 2: 251-655.
- Compagno, L.J.V., D.E. Ebert, and M.J.Smale. 1989. *Guide to the Sharks and Rays of Southern Africa*. Struik Pub., Capetown, 160 p.
- Compagno, L.J.V., D.E. Ebert, and P.D. Cowley. 1991. Distribution of offshore demersal cartilaginous fish (Class Chondrichthyes) off the west coast of southern Africa, with notes on their systematics. *S. Afr. J. Mar. Sci.* 11: 43-139.
- Cowley, P.D. and L.J.V. Compagno. 1993. A taxonomic re-evaluation of the blue stingray from southern Africa (Myliobatiformes: Dasyatidae). *S. Afr. J. Mar.Sci.*
- Crawford, R.J.M., L.V. Shannon, and D.E. Pollock. 1987. The Benguela ecosystem. Part IV. The major fish and invertebrate resources. *Oceanogr. Mar. Biol. Ann. Rev.*, 25: 353-505.
- Fischer, W., G. Bianchi, and W.B. Scott. 1981. *FAO Species Identification Sheets for Fishery Purposes. Eastern Central Atlantic; Fishing areas 34, 47 (in part)*. FAO, Rome, 7 vols.
- Griffiths, M.H. and P.C. Heemstra. 1995. A contribution to the taxonomy of the marine fish genus *Argyrosomus* (Perciformes: Sciaenidae), with descriptions of two new species from southern Africa. *Ichthyological Bull.* 65: 1-40.
- Heemstra, P.C. 1993. FAO species catalogue. Vol. 16. Groupers of the world. An annotated and illustrated catalogue of grouper, rockcod, hind, coral grouper and lyretail species known to date. *FAO Fish. Synop.* (125) Vol.16: 1-382.
- Holthuis, L.B. 1991. FAO species catalogue. Vol. 13. Marine lobsters of the world. An annotated and illustrated catalogue of species of interest known to date. *FAO Fish. Synop.* (125) Vol.13: 1-292.
- Iwamoto, T. and M.E. Anderson. 1994. Review of the grenadiers (Teleostei: Gadiformes) of southern Africa, with descriptions of four new species. *Ichthyological Bull.* 61: 1-28.
- Leslie, R.W. and W.S. Grant. 1991. Redescription of the southern African anglerfish *Lophius vomerinus* Valenciennes, 1837 (Lophiiformes: Lophiidae). *Copeia* 1991(3): 787-800.
- Lloris, D. 1986. Ictiofauna demersal y aspectos biogeográficos de la costa sudoccidental de África (SWA/Namibia). *Monogr. Zool. Mar.* 1: 9-432.
- Lossius, L.L. 1998. *Shrimp Resources of Namibia (internal MFMR report). Results from Icelandic trawlers given exploratory fishing right in 1997*. Ministry of Fisheries and Marine Resources, Lüderitz, Republic of Namibia.
- Macpherson, E. 1983. Crustáceos decápodos capturados en las costas de Namibia. *Res. Exp. Cient.* 11: 3-79.

- Macpherson, E. 1984. Crustáceos decápodos del Banco Valdivia (Atlántico sudoriental). *Res. Exp. Cient.* 12: 39-105.
- Macpherson, E. 1988. New records of Decapods Crustaceans from the coast off Namibia/South West Africa, with the descriptions of two new species. *Inv. Pesq.*: 51-66.
- Macpherson, E. 1991. Biogeography and community structure of the Decapod Crustacean fauna off Namibia (Southeast Atlantic). *J. Crust. Biol.* 11(3): 401-415.
- Mas-Riera, J., A. Lombarte, A. Gordoia, and E. Macpherson. 1990. Influence of Benguela upwelling on the structure of demersal fish populations off Namibia. *Mar. Biol.* 104: 175-182.
- Molloy, F.J. and J.J. Bolton. 1996. The effect of season and depth on the growth of *Gracilaria gracilis* at Luderitz, Namibia. *Botanica marina* 39: 407-413
- Molloy, F.J. 1990. Utilized and potentially utilizable seaweeds on the Namibian coast: biogeography and accessibility. Proc. 13th International Seaweed Symp. *Hydrobiologia* 204-205: 293-299.
- Muñoz-Chápuli, R. and F. Ramos. 1989. Morphological comparison of *Squalus blainvillei* and *S. megalops* in the eastern Atlantic, with notes on the genus. *Japan. J. Ichth.* 36(1): 6-21.
- Nesis, K. N. 1991. Cephalopods of the Benguela upwelling off Namibia. *Bull. Mar. Sci.* 49(1-2): 199-215.
- Payne, A.I.L. and R.J.M. Crawford (eds). 1989. *Oceans of life off southern Africa*. Vaeberg Publishers, Cape Town, South Africa, 380 p.
- Payne, A.I.L., J.A. Gulland, and K.H. Brink (eds.). The Benguela and comparable systems. *S. Afr. J. Mar. Sci.* 5: 1-957.
- Payne, A.I.L., K.H. Brink, K.H. Mann, and R. Hilborn. (eds.). Benguela trophic functioning. *S. Afr. J. Mar. Sci.* 12: 1-1108.
- Quéro, J. C., J. C. Hureau, C. Karrer, A. Post, and L. Saldanha (eds.). *Check-list of the Fishes of the Eastern Tropical Atlantic*. 3 vols. UNESCO, Paris.
- Roeleveld, M.A. 1998. The status and importance of cephalopod systematics in southern Africa. *S. Afr. J. Mar. Sci.* 20: 1-16.
- Sánchez, P. 1988. Systematics and distribution of the cephalopods of Namibia. *Monog. Zool. Mar.* 3: 205-266.
- Shannon, L.V. 1985. The Benguela ecosystem. Part I. Evolution of the Benguela, physical features and processes. *Oceanogr. Mar. Biol. Ann. Rev.* 23: 105-182.
- Smith, M.M. and P.C. Heemstra (eds). 1986. *Smiths' Sea Fishes*. J.L.B. Smith Institute of Ichthyology, Grahamstown, 1047 p., 144 pls.
- Tarr, J. and M. Lastrico-Schneider. 1998. *Guide to the Names of Marine Fish and Crustaceans in Namibia*. GOPA-Consultants Report. Bad Homburg, Germany. 48 p.
- Villanueva, R., P. Sánchez, and M.A. Compagno Roeleveld. 1991. *Octopus magnificus* (Cephalopoda: Octopodidae), A new species of large octopod from the southeastern Atlantic. *Bull. Mar. Sci.* 49(1-2): 39-56.
- Whitehead, P.J.P. and T. Wongratana. 1986. Engraulidae. In Smith, M. M. and P. C. Heemstra (eds). *Smiths' Sea Fishes*. J.L.B. Smith Institute of Ichthyology, Grahamstown, 1047 p., 144 pls.
- Whitehead, P.J.P., G. J. Nelson, and T. Wongratana. 1988. FAO species catalogue. Vol. 7. Clupeoid fishes of the world (Suborder Clupeoidei). An annotated and illustrated catalogue of herring, sardines, pilchards, sprats, shads, anchovies and wolf-herrings. Part 2. *FAO Fish. Synop.* (125) Vol. 4, Pt. 2 Engraulidae: 251-655.
- Wysokinski, A. 1986. *The living marine resources of the Southeast Atlantic*. FAO, Rome. 120 p.

CHECKLIST OF FISHES AND MARINE MAMMALS

The composition of the fauna of Namibia is influenced by a variety of factors. The strong upwelling characteristic of the coast of Namibia makes the area highly productive but limits the fauna in some areas to cold-water species. The northern part of Namibia borders the rich tropical and subtropical fauna of the eastern central Atlantic and some of the species of this tropical fauna extend into the northern area of Namibia. The southern part of Namibia borders the rich fauna characteristic of the southern Cape of Africa. The Cape nominally separates the very rich Indo-Pacific fauna from the Atlantic fauna. This area of confluence has representatives from both faunas and the fauna of southern Namibia is primarily influenced by this Cape fauna and prevailing northern currents.

Similar to the fauna itself, much of the literature covering fishes of Namibia is influenced by works designed to cover the Cape region or by works covering the warmer waters to the north. The result is that Namibia tends to be only partially covered in each of the major works of the region. This checklist is intended to bridge this literature gap by summarizing the distribution findings of the literature to cover all of Namibia. It also draws upon information collected by fisheries research vessels and a valuable collection of fishes housed in the Namibian Ministry of Fisheries and Marine Resources in Swakopmund, Namibia.

Bibliographic Abbreviations: **FAO Sp. Cat.:** *FAO Species Catalogue* Vol. 4, Part 1 and Part 2, *Sharks of the World* (Compagno, 1984a, b); **FAO ECA:** *FAO Species Identification Sheets for Fishery Purposes, Eastern Central Atlantic* (Fischer et al., 1981); **CLOFETA:** *Checklist of the fishes of the eastern tropical Atlantic* (Quero et al., 1990); **Smith's:** *Smith's Sea Fishes* (Smith and Heemstra, 1986); **Compagno et al.:** *Guide to the Sharks and Rays of Southern Africa* (Compagno et al., 1989); **MFMR:** A collection of fishes at the Ministry of Fisheries and Marine Resources in Swakopmund, Namibia; **MZM:** *Monografias de Zoologia Marina* (Lloris, 1986); **Nansen:** Cruise Reports in Namibia of the R/V DR FRIDTJOF NANSEN.

Distribution Abbreviations (boldface abbreviations generally indicate a record in Namibia): • = not listed; ✓ = listed but not reported from Namibia; - = listed but no distribution mentioned; X = Not included in species accounts; An = Angola; EA = eastern Atlantic and perhaps elsewhere, this includes species reported as circumglobal or widespread in all oceans and therefore expected in Namibia; ETA = throughout CLOFETA area and therefore at least northern Namibia; ETA-s = southern eastern tropical Atlantic but not specified from Namibia; Lu = Lüderitz; (N) = reported as probably from Namibia; N = recorded from Namibia, locality not specified; N-c = Namibia, central part; N-n = Namibia, northern part; N-s = Namibia, southern part; N-t = throughout Namibia; N* = collected on board R/V Nansen during 1998 orange roughy survey, specimens deposited in the South African museum or the United States Natural History Museum; SA = Southern Africa (Namibia not specified); SA-w = western SA; WB = reported from Walvis Bay.

Habitat Abbreviations: s = shallow; AB = Archibenthic; B = Benthic or demersal; BP = Benthopelagic; D = Demersal; E = Epipelagic; l = Littoral; M = Mesopelagic; n = Neritic; P = Pelagic; PB = Bathypelagic.

Cartilaginous Fishes

TAXA	FAO		CLOFETA	Smith's	Compagno et al.	MFMR	MZM	Nansen	Habitat Notes
	Sp.Cat.	ECA							
MYXINIFORMES									
Myxinidae									
<i>Eptatretus hexatrema</i>			•	WB					20-400 m
<i>Myxine capensis</i>			•	SA-w		N	N-c		200-460 m
HEXANCHIFORMES									
Hexanchidae									
<i>Heptranchias perlo</i>	An	An	An	N	N		N-c	N	D, 50-1 000 m
<i>Hexanchus griseus</i>	N	N	✓	N	N		N-n,c	N	D, s-100 m
<i>Notorynchus cepedianus</i>	N	•	WB	N	N				s-80 m
Chlamydoselachidae									
<i>Chlamydoselachus anguineus</i>	N	N	N	N	N		N-n		M,E,120-1 280 m

TAXA	FAO		CLOFETA	Smith's	Compagno et al.	MFMR	MZM	Nansen	Habitat Notes
	Sp.Cat.	ECA							
LAMNIFORMES									
Odontaspidae									
Carcharias taurus	✓	✓	✓	✓	N				s-100 m
Lamnidae									
Carcharodon carcharias	SA-w	(N)	N	✓	N				s-1 280m
Isurus oxyrinchus	N	✓	ETA	✓	N			N	E, M, s -152 m
Cetorhinidae									
✕Cetorhinus maximus	SA-w	✓	✓	SA-w	SA-w				E
Alopiidae									
✕Alopias superciliosus ¹⁷	N	An	An	✓	✓				M, s-500 m
A. vulpinus	(N)	(N)	ETA	✓	N				E
CARCHARINIFORMES									
Scyliorhinidae									
✕Apristurus spp.	(N)	•	•	✓	N-s		N-t		B, 200-720 m
Galeus polli	N	-	An	N-n	N	N	N-c	N	B, 200-720 m
Haploblepharus pictus	N	•	N	N	N-c, s				B
Holohalaelurus regani	SA-w	•	•	✓	N-s	N	N-s	N	160-740 m
Scyliorhinus capensis	✓	•	•	SA-w	N-s		N-s	N	26-495 m
Triakidae									
Galeorhinus galeus	N	N	N	✓	N			N	I, E, s-300m
Mustelus mustelus	N	✓	✓	N	N		N-s	N	s-350 m
M. palumbes	N	•	•	N-c, s	N		N ²¹	N	s-443 m
Triakis megalopterus	SA-w	•	•	N-c, s	N				s-50 m
Hemigaleidae									
Paragaleus pectoralis	An	An	✓	(N-n)	N-c, n				s-100 m
Carcharhinidae									
Carcharhinus brachyurus	N	N	N	N	N				s-100 m
C. signatus	An	An	An	•	N-n				B, 200-500 m
Prionace glauca	N	N	ETA	SA-w	N		N-n	N	E, s-152 m
Sphyrnidae									
✕Sphyrna leweni	✓	✓	✓	✓	✓			N-n ³¹	E
SQUALIFORMES									
Squalidae ¹⁴									
Centrophorus granulosus	✓	An	✓	WB	•		N-n	N	B, M, 275-800 m
C. squamosus	N	N	ETA	WB	N		N-c	N	B, M, 370-2400m
✕C. uyato ⁴¹ (=C. granulosus)	N	An	N-n	•	N		N-n		B, M, 250-400 m
Centroscyllium fabricii	N	-	ETA-s	WB	N		N-c	N	B, 230-1500 m
Centroscymnus coelolepis	N	✓	ETA	•	N		N-c		300-2 718 m
C. crepidater	N	N	N	WB	N		N-t	N	B, 300-1 000 m
Deania calcea	N	✓	(N)	✓	N		N-c, s	N	B, 400-1 400 m

TAXA	FAO		CLOFETA	Smith's	Compagno et al.	MFMR	MZM	Nansen	Habitat Notes
	Sp.Cat.	ECA							
<i>D. profundorum</i>	N	-	✓	N	N			N	B, 275-608 m
<i>D. quadrispinosum</i>	N	•	WB	N-n	N			N	275-640 m
<i>Etomopterus</i> cf. <i>brachyurus</i> ³⁷ ^{15/}	✓	•	•	SA-w	N			N	420-900 m
<i>E. "gracilispinis" = E. compagnoi</i>	SA-w	•	•	•	(N)				B, 479-923 m
<i>XE. granulatus</i> ^{6/}	SA-w	•	(N)	✓	SA-w				M, 220-640 m
<i>XE. "lucifer"^{2/} (=E. cf. brachyurus)^{15/}</i>	(N)	•	(N)An	✓	•		N-c, s	N	B, 180-800 m
<i>E. pusillus</i>	N	-	✓	✓	N	N	N-n, c	N	B, M, 274-708 m
<i>XE. spinax</i> ^{6/}	✓	N	✓	•	•			N	B, 75-2 000 m
<i>XScymnodon obscurus</i> ^{6/}	✓	-	✓	•	•		N-n		B, M, 550-1 450 m
<i>S. squamulosus</i>	✓	•	I	•	N of WB				B, 430-900 m
<i>Squalus acanthias</i>	SA-w	✓	N	SA-w	SA-w		N-s	N	B, 10-515 m
<i>S. blainvillei</i>	N	(N)	ETA	•	•		N-c	N	B, >100 m
<i>S. megalops</i>	N	N	N	N	N			N	B, 50-450 m
<i>S. mitsukurii</i>	An	•	•	✓	N-c, s			N	B, 159-552 m
Oxynotidae									
<i>Oxynotus centrina</i> ^{16/}	(N)	N	ETA	N-c, s	N		N-n	N	B, 60-660 m
Echinorhinidae									
<i>Echinorhinus brucus</i>	N	N	N	N	N		N-s	N	B, 10-900 m
SQUATINIFORMES									
Squatinae									
<i>Squatina aculeata</i>	N-n	An	An	•	•				50-500 m
<i>S. oculata</i>	N-n	N	N	•	•				s-300 m
TORPEDINIFORMES									
Torpedinidae									
<i>Torpedo nobiliana</i>		-	SA-w	EA	N-c, s	N	N-c	N	B, 10-450 m
Narkidae									
<i>Narke capensis</i>		•	-	✓	✓	N			
RAJIFORMES									
Rhinobatidae									
<i>Rhinobatos annulatus</i>		•	•	✓	N				s-70 m
<i>R. blochii</i>		-	N	N-c, s	N-c, s				B, s
Rajidae									
<i>Bathyraja smithii</i>		-	• ^{8/}	✓	N-c, s		N-c	N	440-1 020 m
<i>Cruriraja parcomaculata</i>		✓	•	N-s	N-s				195-620 m
<i>Raja alba</i>		-	SA	N	N				B, s-350 m
<i>R. caudaspinosa</i>		-	•	N-s	N-s		•	N	B, 310-718 m
<i>R. clavata</i> ^{9/}		-	ETA	N-c,s	•		N-c	N	B, s-300 m
<i>R. confundens</i> ^{12/}		-	ETA	N-c,s	N	N	N-n	N	B, 200-1 700 m
<i>XR. dissimilis</i> ^{10/}		-	N	✓	SA-w				B, 925-1 620 m
<i>R. doutrei</i>		-	N	N-s	N		N-c		B, 450-1 000 m
<i>R. leopardus</i>		-	ETA	N	N	N	N-c	N	B, 170-1 920 m

TAXA	FAO		CLOFETA	Smith's	Compagno et al.	MFMR	MZM	Nansen	Habitat Notes
	Sp.Cat.	ECA							
<i>R. miraletus</i>		-	ETA	An	N		N-n	N	B, s-690 m
<i>R. pullopunctata</i>		•	•	N-s	N-s				B, 50-457 m
<i>R. ravidula</i>		•	•	✓	N-s				B, 496-1 016 m
<i>R. spinacidermis</i>		-	✓	SA-w	N-s				B, 450-1 500+ m
<i>R. springeri</i>		-	•	✓	N-s				B, 88-740 m
<i>✗R. stenorhynchus</i> ^{11/}		•	•	✓	✓			N	B, 624-741 m
<i>R. straeleni</i> ^{9/}		-	N	N	N		N-c	N	B, 100-800 m
<i>R. wallacei</i>		•	•	✓	N-s			N	B, 95-432 m
MYLIOBATIFORMES									
Dasyatidae									
<i>Dasyatis crysonata</i> ^{18/}		-	An	•	N,,				n, 12-109 m
<i>✗D. pastinaca</i> (= <i>D. crysonota</i>) ^{18/}		✓	SA, An	(N)	•				n, B, 20-35 m
<i>D. violacea</i>		-	•	EA, SA	✓			N	P
Gymnuridae									
<i>✗Gymnura altavela</i>		✓	An	I	•			N	B, 10-70 m
<i>G. natalensis</i>		•	•	✓	N-c,s				B, s-75 m
Myliobatidae									
<i>Myliobatis aquila</i>		N	WB	N	N		N-n,c	N	BP, s-100 m
<i>Pteromylaeus bovinus</i>		N	An, SA	N	✓				BP
CHIMAERIFORMES									
Callorhynchidae									
<i>Callorhynchus capensis</i>		•	N	N	N		N-n,c	N	B, 10-200 m
Chimaeridae									
<i>Chimaera</i> sp.		•	•	•	N			N	B, 680-1 016 m
<i>Hydrolagus</i> sp. ^{19/}		-	N ^{12/}	•	•	N	N-c ^{13/}	N	AB, 400-1 200 m
Rhinochimaeridae									
<i>Harriotta raleighana</i>		-	✓(SA)	✓	N-s				B, 600-2 150 m
<i>Neoharriotta pinnata</i>		-	WB	N-c,n	N-c,n		N-n,c	N	B, 150-500 m
<i>Rhinochimaera atlantica</i>		-	N	N-s	N		N-n,c		B, 500-1 500 m

Species Notes:

1/ = Compagno et al. (1989) indicates not in Namibia while Compagno (1984) indicates it is in Namibia.

2/ = Identified as *M. asteria*, a similar species not occurring in this area.

3/ = Sighting only, from near border with Angola - no specimen.

4/ = Probably an invalid name (Muñoz-Chápuli and Ramos, 1989), reporting of this species in Namibia are probably attributable to *C. granulatus* (Compagno, pers.comm.).

5/ = L. Compagno (pers. comm.) thinks this may be a new species.

6/ = Report from Namibia probably mistaken.

7/ = Records of this species probably attributable to *E. cf. brachyurus*

8/ = *Bathyrja* sp. noted but not specified from Namibia.

9/ = Reports of *R. clavata* and *R. straeleni* probably represent a single species of an uncertain name (L.S.V. Compagno, pers.comm.).

10/ = According to Compagno et al. (1989), found south of the Orange River.

11/ = Reports of this species from the F. Nansen is probably a misidentification, this species is only known from a few specimens found off the southern east coast of Africa.

12/ = Reported as *H. mirabilis*.

13/ = As *H. Africanus*.

14/ = Some authors include certain genera in the families Centrophoridae (*Centrophorus* and *Deania*), Etmopteridae (*Centrosyllium* and *Etmopterus*), and Somniosidae (*Scymnodon*).

15/ = Reports of *E. lucifer* refer to this species since *E. lucifer* probably does not occur in Southern Africa.

16/ = Formerly referred to as *O. shubnikovi*.

17/ = Considered a junior synonym of *R. barnardi* by some authors.

18/ = Previously confused with *D. marmorata* and *D. pastinaca* which do not occur in Namibia.

19/ = Probably *H. africanis*.

Bony Fishes

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
ALBULIFORMES							
Albulidae							
<i>Pterothrissus belloci</i>	N-n	N-c, n		N	N-c	N	20-500 m
NOTOCANTHIFORMES							
XHalosauridae							
<i>XHalosaurus ovenii</i>		N	N-c, s		N-n	N	BP, 440-1700 m
Notacanthidae							
<i>Notacanthus sexspinis</i>	•	•	N-c, s	N	N-c, s	N	B, 360-1100 m
ANGUILLIFORMES							
XSynphobranchidae							
<i>XSynphobranchus kaupi</i>	•	✓	✓		N-n	N-n	B, 236-3200 m
<i>XSimenchelys parasiticus</i>						N*	B, 900-1500
Ophichthidae							
<i>XEchelus pachyrhynchus</i>	-	An	•		N-n		B, 200-500 m
<i>XMyrophis plumbeus</i>	-	✓	•		N-c		B, s
<i>Mystriophis rostellatus</i>	An	An	N-c, s	N	N-n ^{1/2}		B, s-40 m
<i>XOphichthus karreri</i>	-	N	•	N			B, 390 m
<i>Ophisurus serpens</i>	An	N	N	N		N	B
XColocongridae							
<i>XColoconger cadenati</i>	-	An	•		N-n		B, 270-600 m
Congridae							
<i>Bassanago albescens</i>	•	•	✓			N	B
<i>Bathyroconger vicinus</i>	-	✓	✓	N	N-c	N	B, 329-1318 m
<i>XConger conger</i>	✓	✓	•	N			B, s-500 m
<i>XJaponoconger africanus</i>	-	✓	•		N-t		B, 250-650 m
XNettastomatidae							
<i>XNefica proboscidea</i>	•	N	EA			N	B
XDerichthyidae							
<i>XNessorhaphus ingolfianus</i>						N*	P, >500 m
XNemichthyidae							
<i>XAvocettina acuticeps</i>	•	N	✓			N	P, s-2000 m
<i>XNemichthys curvirostris</i>	•	ETA	EA	N			P, s-2000 m
<i>XN. scolopaceus</i>	•	N	✓	N	N-nc	N	P, s-2000 m
CLUPEIFORMES							
Clupeidae							
<i>Etrumeus whiteheadi</i>	•	N	WB		N-t	N	P, s- 200 m
<i>Sardinella aurita</i>	An	N-n	WB			N	P, s - 350 m
<i>S. maderensis</i>	An	WB	WB	N		N	P, s - 50 m

[illegible]

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
X <i>Cyclothone microdon</i>	-	ETA	EA				BP, 50-2000
X <i>Diplophos</i> sp.	•			N			
X <i>Gonostoma bathyphilum</i>	-	ETA	EA				BP, 800-3000m
X <i>G. denudatum</i>	-	✓	✓		N-s		M, 100-700 m
X <i>Triplophos hemingi</i>	-	N	EA	N	N-n		M,BP, 200-2 000 m
X Phosichthyidae							
X <i>Ichthyococcus ovatus</i>	•	ETA-s	✓				M, 200-600
X <i>Phosichthys argenteus</i>	-	An	✓	N	N-s	N	M, 300-1050 m
X <i>Polymetme corythaeola</i>	•	✓	✓		N-s		M, 300-800 m
X <i>Yarrella blackfordi</i>	•	AN	AN	N	N-N		M
X Chauliodontidae							
X <i>Chauliodus schmidtii</i>	•	N	•				M
X <i>C. sloani</i>	•	ETA	EA		N-c		M
X Stomiidae							
X <i>Stomias boa boa</i>	•	EA	EA	N	N-n	N	M
X Astronesthidae							
X <i>Astronesthes caulophorus</i>	•	ETA	ETA-s				M
X <i>A. leucopogon</i>	•	ETA-s	•				M
X <i>A. niger</i>	•	ETA	✓				M
X <i>A. richardsoni</i>	•	✓	•		N-C ⁴ⁱ		M
X <i>Heterophotus ophistoma</i>	•	ETA-s	•	N			M
X <i>Neonesthes capensis</i>	•	ETA	EA				M
X <i>N. microcephalus</i>	•	ETA-s	✓				M
X Melanostomiidae							
X <i>Bathophilus ater</i>	•	EA-s	EA-s				M
X <i>B. brevis</i>	•	EA-s	•				M
X <i>B. irregularis</i>	•	EA-s	•				M
X <i>B. longipinnis</i>	•	ETA-s	EA-s				M
X <i>Melanostomias bartonbeani</i>	•	EA-s	EA				M
X <i>M. niger</i>	•	ETA-s	EA-s		N-t		M
X <i>Odontostomias micropogon</i>	•	N	•		N-n		M
X <i>Opostomias micripnus</i>	•	•	✓		N-S ⁵ⁱ		M
X <i>Photonectes braueri</i>	•	EA-s	EA	N		N	M
X <i>P. margarita</i>	•	ETA-s	•				M
X <i>Photonectes</i> sp.	•	•	•	N			
X Malacosteidae							
X <i>Photostomias</i> n.sp.	•	ETA-s	•				M

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
XIdiacanthidae							
<i>XIdiacanthus atlanticus</i>						N*	M, 300-500 m
AULOPIFORMES							
Chlorophthalmidae							
<i>XChlorophthalmus agassizi</i>	•	N ^{6/}	•		N-c ^{6/}	N ^{6/}	B
<i>C. atlanticus</i>	•	✓ ^{6/}	•		N-C	N	B
<i>C. punctatus</i>	•	•	✓ ^{2/}	N		N	B
<i>XIpnots agassizii</i>	•	N	N			N	B
<i>XParasudis fraserbrunneri</i>	•	✓	•			N	B
Synodontidae							
<i>Trachinocephalus myops</i>	N	N-n	N-c, n				B
XNotosudidae							
<i>XAhliesaurus berryi</i>	•	ETA	EA				M
<i>XScopelosaurus meadi</i>	•	EA-s	N	N	N-s	N	BP
XParalepididae							
<i>XLestidium atlanticum</i>	-	✓	✓	N		N	E
<i>XLestrolepis intermedia</i>	-	✓	✓			N	P, 10-900 m
<i>XMacroparalepis affinis</i>	-	EA-s	EA-s	N	N-s ^{6/}		M
<i>XSudis hyalina</i> ^{9/}	-	EA-s	EA-s				M, 200-2000 m
XAlepisauridae							
<i>XAlepisaurus ferox</i>	-	ETA	WB				P
XEvermannellidae							
<i>XEvermannella indica</i>	•	N	EA				M, 500-800 m
<i>XOdontostomops normalops</i>	•	ETA	•				M, 400-1000 m
XScopelarchidae							
<i>XBenthalbella infans</i>	•	ETA	✓				M
<i>XScopelarchus analis</i>	•	ETA	✓		N-s		M
<i>XS. guentheri</i>	•	ETA	✓				M
MYCTOPHIFORM							
XNeoscopelidae							
<i>XNeoscopelus macrolepidotus</i>	-	N	✓	N	N-c		BP, 300-800 m
Myctophidae							
<i>XBenthoema suborbitale</i>	-	EA-s	EA				M
<i>XBolinichthys indicus</i>	-	EA-s	EA-s				M
<i>XCeratoscopelus wormingi</i> ^{29/}							M
<i>XDiaphus anderseni</i>	-	EA-s	✓				M
<i>XD. diadematus</i>	-	EA-s	✓				M
<i>XD. dumerilii</i>	-	EA-s	EA-s		N-c		M

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
X <i>D. effulgens</i>	-	EA-s	EA-s				M
X <i>D. fragilis</i>	-	EA-s	✓				M
<i>D. hudsoni</i>	-	N	N		N-c		M
<i>D. meadi</i>	-	N	N				M
X <i>D. mollis</i>	-	ETA	EA				M
X <i>D. ostenfeldi</i>	-	N	N				M
X <i>D. parri</i>						N*	M
X <i>D. taaningi</i>	-	ETA-s	N				M
X <i>Diogenichthys atlanticus</i>	-	ETA	EA-s				M
X <i>Electrona risso</i>	-	EA-s	N				M
X <i>Gonichthys cocco</i>	-	EA-s	✓				M
X <i>Gymnoscopelus piabilis</i>						N*	M
X <i>Hygophum hygomii</i>	-	EA-s	EA-s				M
X <i>H. reinhardtii</i>	-	EA-s	✓				M
X <i>H. taaningi</i>	-	ETA	•				M
X <i>Lampadena chavesi</i>	-	EA-s	EA-s				M
X <i>L. dea</i>	•	EA-s	✓				M
X <i>L. pontifex</i>	-	N	N		N-n		P, 90-750 m
<i>Lampanyctodes hectoris</i>	-	N	N		N-c		P
X <i>Lampanyctus alatus</i>	-	ETA	N				M
X <i>L. ater</i>	-	EA-s	N				M
<i>L. australis</i>	-	N	N		N-n		
X <i>L. cuprarius</i>	-	EA-s	•				M
X <i>L. festivus</i>	-	EA-s	N				M
X <i>L. intricarius</i>	-	EA-s	EA-s				M
X <i>L. lepidolychnus</i>	-	•	EA-s				M
X <i>L. lineatus</i>	-	EA-s	✓				M
X <i>L. photonotus</i> ^{29/}							M
X <i>L. pusillus</i>	-	EA-s	N				M
X <i>Lepidophanes gaussi</i>	-	EA-s	•				M
X <i>L. guentheri</i>	-	EA-s	✓				M
X <i>Lobianchia dofleini</i>	-	EA-s	N		N-c		M
X <i>L. gemellarii</i>	-	EA-s	N				M
X <i>Metellectrona ventralis</i>						N*	M
X <i>Myctophum nitidulum</i>	-	ETA	EA-s				M
X <i>M. phengodes</i>	•	EA-s	N				M
X <i>Notolychnus valdiviae</i>	-	ETA	N				M
X <i>Notoscopelus caudispinosus</i>	-	ETA	EA-s				M

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
X <i>N. resplendens</i>	-	ETA	N				M
X <i>Scopelopsis multipunctatus</i>	-	EA-s	EA-s				M
<i>Symbolophorus boops</i>	-	N	N	N	N-t		M
X <i>Taaningichthys bathyphilus</i>	-	EA-s	EA-s				PB
X <i>T. minimus</i>	-	EA-s	EA-s				M
GADIFORMES							
Merlucciidae							
<i>Merluccius capensis</i>	N	N	N	N	N-t	N	BP, 50-500 m
<i>M. paradoxus</i>	•	N	N	N	N-c	N	BP, 200-900 m
<i>M. polli</i>	An	N	•	N	N-n	N	BP, 50-550 m
Moridae							
<i>Antimora rostrata</i>						N*	BP, 500-2 800 m
<i>Gadella imberbis</i> ^{49/}	-	✓	•		N-n, c		BP
<i>Laemonema laureysi</i>	-	N	N	N	N-t	N	BP
<i>Lepidion capensis</i>	•	•	✓		N-s		
<i>Physiculus capensis</i>	•	•	✓	N		N	BP
<i>Tripteryphycis gilchristi</i>	•	•	✓	N	N-s	N	BP
Macrouridae							
X <i>Bathygadus favosus</i>	-	✓	EA				BP, 770-2745 m
<i>B. melanobranchus</i>	N ^{11/}	EA	✓				BP, 450-2600 m
<i>Caelorinchus acanthiger</i>	•	•	N			N	BP
<i>C. braueri</i>	•	•	N		N-c, s	N	BP, 400-620 m
<i>C. karrerae</i>	•	•	•		N-c ^{12/}		BP
<i>C. matamua</i>	•	•	✓ ^{13/}	N	N-s ^{13/}		BP, 450-1 000 m
<i>C. coelorhincus polli</i>	N	N	N	N		N	BP, 155-274 m
<i>C. simorynchus</i> ^{30/}	-	•	✓	N	N-c	N	BP, 73-1 086 m
<i>Cetonus globiceps</i> ^{31/}							BP, 860-4 621 m
<i>Coryphaenoides mamillani</i> ^{31/}							BP, 950-1 400 m
<i>Hymenocephalus italicus</i>	-	An	•		N-n	N	BP, 500-1 150 m
<i>Kuronezumia leonis</i>	•	•	N			N	BP, 161-631 m
<i>Lucigadius ori</i> ^{31/}							BP, 120-1 153
<i>Malacocephalus laevis</i>	N	EA	EA	N	N-s	N	BP, 200-1 000 m
<i>M. occidentalis</i>	An	•	•		N-n	N	BP, 200-600 m
X <i>Nezumia aequalis</i>	An	An	•		N-n		BP, 200-1 000 m
X <i>N. africana</i>	-	An ^{14/}	•		N-s ^{14/}		BP, 600-700 m
X <i>N. brevibarbatus</i>	•	•	✓		N-t		BP, 549- 1 737 m
<i>N. micronychodon</i>	-	An	N			N	BP, 366-1400 m
<i>N. milleri</i>	-	N	N	N		N	BP, 366-412
<i>Trachyrincus scabrus</i> ^{15/}	✓	•	✓	N	N-c	N	BP, 395-1 495 m

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
OPHIDIIFORMES							
Ophidiidae							
<i>XBrotula barbata</i>	An	An	N ^{16/}				B
<i>Dicrolene intronigra</i>	•	EA	N		N-c		B, 200-1 800 m
<i>XD. pallidus</i>	•	N	N				B, 2772-2992 m
<i>Genypterus capensis</i>	•	N	WB		N-c	N	B, 200-800 m
<i>Lamprogrammus exutus</i>	•	N-n	WB	N	N-nc	N	B, 260-700 m
<i>XPorogadus miles</i>	•	•	EA				B, 1000-2000 m
<i>Selachophidium guentheri</i>	•	N	N	N	N-c	N	B, 350-655
<i>Spectrunculus grandis</i>	•	N	N				B, 800-4255 m
BATRACHOIDIFORMES							
Batrachoididae							
<i>Chatrabus melanurus</i>	N-n ^{17/}	WB ^{17/}	N	N	N-t ^{17/}	N	B, 120-250 m
<i>Perulibatrachus elminensis</i>	N	WB	N-c, n				B
<i>P. rossignoli</i>	An	An	N			N	B
LOPHIIFORMES							
Lophiidae							
<i>XLophius budegassa</i>	✓	✓	•		N-n		B, s-650 m
<i>L. vaillanti</i> ^{32/}	✓	✓	•		N-n		B, 200-700 m
<i>L. vomerinus</i>	-	•	EA	N		N	B, 170-310 m
XOgcocephalidae							
<i>XDibranchius atlanticus</i>	-	N	•	N	N-n		B, 300-1100 m
<i>XHalieuteus hirsuta</i>	•	•	•		N-s		B
XAntennariidae							
<i>X Antennarius striatus</i>	-	ETA	EA				B, 25-50 m
<i>XHistrio histrio</i>	-	ETA	EA-s				P
XChaunacidae							
<i>XChaunax pictus</i>	•	ETA	EA	N	N-s		B
XMelanocetidae							
<i>XMelanocetus johnsoni</i>	•	✓	EA	N	N-n		M, 500-1500 m
XHimantolophidae							
<i>XHimantolophus groenlandicus</i>	•	✓	✓		N-s		M
XDiceratiidae							
<i>XPhrynychthys wedli</i>	•	N	N-c, n	N	N-t	N	M, BP
XCeratiidae							
<i>XCeratias holboelli</i>	•	✓	✓	N			M
<i>XCryptosaras couesii</i>	•	✓	✓		N-s		M, PB
XCaulophrynidae							

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
<i>X</i> <i>Caulophryne polynema</i>	•	✓	•		N-S		PB
XGOBIESOCIFORMES							
XGobiesocidae							
<i>X</i> <i>Chorisochismus dentex</i>		•	✓	N			B
ATHERINIFORMES							
Atherinidae							
<i>Atherina breviceps</i>	•	•	N-S	N			n
BELONIFORMES							
Exocoetidae							
<i>Exocoetus volitans</i>	✓	ETA	✓				E
<i>Hirundichthys rondeletii</i>	✓	ETA-s	✓				E
Scomberesocidae							
<i>Nanichthys simulans</i>	N	ETA-s	✓				E
<i>Scomberesox saurus scombroides</i>	N	ETA-s	✓	N	N-C	N	E
LAMPRIIFORMES							
Lampridae							
<i>Lampris guttatus</i>	N	N	✓				M, 100-400 m
Ateleopodidae							
<i>Guentherus altivela</i>	-	ETA	N		N-c	N	B, 200-700 m
<i>Ijimaia loppei</i>	-	ETA	N-n		N-n	N	B, 200-700 m
Trachipteridae							
<i>Trachipterus trachipterus</i>	•	ETA	EA	N	N-C ^{18/}	N	M
<i>Zu cristatus</i>	•	•	✓			N	M
XRegalecidae							
<i>X</i> <i>Regalecus glesne</i>	•	ETA	✓				M
BERYCIFORMES							
Berycidae							
<i>Beryx splendens</i>	✓	✓	✓	N	N-t	N	B, 200-600 m
Diretmidae							
<i>Diretmoides parini</i>	-	EA-s	EA-s				P, s-2000 m
Trachichthyidae							
<i>Gephyroberyx darwini</i>	(N)	✓	✓				P, 50-500 m
<i>Hoplostethus atlanticus</i>	•	N-c, s	N-c, s		N-c, s		P, 180-1500 m
<i>H. cadenati</i>	✓	✓	EA		N-n, c	N	P, 200-800 m
<i>H. mediterraneus</i>	N	✓	N	N	N	N	P, 200-1000 m
<i>H. melanopus</i>	•	•	N	N		N	P, 400-900 m
XAnoplogasteridae							
<i>X</i> <i>Anoplogaster cornuta</i>	•	ETA	EA				M, PB, 50-2000 m
XMelamphaidae							
<i>X</i> <i>Melamphaes eulepis</i>	•	✓	EA-s				PB

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
X <i>M. Hubbsi</i>	•	EA-s	•				PB
X <i>M. simus</i>	•	EA-s	EA				PB
CETOMIMIFORMES							
X Barbourisiidae							
X <i>Barbourisia rufa</i>	•	✓	EA	N	N-s	N	M,PB,BP, 300-2000 m
ZEIFORMES							
Zeidae							
X <i>Cyttopsis roseus</i>	-	ETA	An				M
X <i>Cyttus traversi</i>	•	•	✓		N-s		B, 360-460 m
<i>Zenopsis conchifer</i>	N	ETA	N-C, s		N-n	N	M
<i>Zeus capensis</i>	•	•	✓	N	N-s	N	B, 35-200 m
<i>Z. faber</i>	N	ETA	EA	N	N	N	M
X Grammicolepididae							
X <i>Xenolepidichthys dalgleishi</i>	•	✓	N-C, s				BP, 200-400 m
Oreosomatidae							
<i>Allocyttus verrucosus</i>	•	EA-s	N-c, s	N	N-t	N	BP, 500-1628 m
<i>Neocyttus rhomboidalis</i>	•	WB	WB		N-c		BP, 400-900 m
<i>Pseudocyttus maculatus</i>		WB	WB				BP, 400-1158 m
X Caproidae							
X <i>Antigonia capros</i>	•	ETA	•				B, 50-400 m
SYNGNATHIFORMES							
X Syngnathidae							
X <i>Syngnathus acus</i>	•	EA-s	N	N			n
X Fistulariidae							
X <i>Fistularia petimba</i>	✓	An	WB				n
Macroramphosidae							
<i>Macroramphosus scolopax</i>	N	✓	✓				B
<i>Notopogon macrosolen</i>	•	•	✓	N	N-s	N	B
SCORPAENIFORMES							
Congiopodidae							
<i>Congiopodus spinifer</i>	•	•	WB	N		N	B
<i>C. torvus</i>	•	•	N		N-s		B
Scorpaenidae							
<i>Ectreposeastes imus</i>	-	✓	-	N		N	BP, 500-850 m
<i>Helicolenus dactylopterus</i>	-	✓	WB	N	N-c	N	B
<i>Neomerinthe folgori</i>	-	✓	N				B
<i>Pontinus leda</i>	-	N	N		N-n		B, 100-400 m
<i>Scorpaena elongata</i>	-	N	•		N-n		B, 100-600 m
<i>Setarches guentheri</i>	-	EA-s	✓				B, 200-700 m

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
<i>Trachyscorpia capensis</i>	•	•	✓		N-s		B, 450-1025 m
Triglidae							
<i>Chelidonichthys capensis</i>	N	WB	N		N-c	N	B
<i>XC. lastoviza</i>	N	ETA	•				B, 25-150 m
<i>C. queketti</i>	-	•	✓	N		N	B, s-150 m
<i>Trigla lyra</i>	N	ETA	WB	N	N-n, c	N	B, 30-400 m
XPeristediidae							
<i>XPeristedium cataphractum</i>	•	An	•	N			B, 70-600 m
XPsychrolutidae							
<i>XEbinania costaecanarie</i>	•	EA-s	N	N	N-c		B, 318-600 m
XLiparididae							
<i>XCareproctus griselda</i>	•	•	N-s		N-c, s		B, 600-615
<i>XParaliparis australis</i>	•	•	WB				B, 300-570 m
<i>XP. wilsoni</i>	•	✓	N				B, 900-1134 m
PERCIFORMES							
XHowellidae^{19/}							
<i>XHowella sherboni</i>	•	N	✓		N-s		500-900 m
Acropomatidae							
<i>Synagrops microlepis</i>	•	An	WB	N	N-c	N	PB, 50-450 m
Polyprionidae							
<i>Polyprion americanus</i>	An	An	EA	N		N	B, 40-350 m
Serranidae							
<i>Acanthistius sebastoides</i>	-	•	N				B, 1-20 m
<i>Anthias anthias</i>	✓	ETA	•	N	N-n		B, s -300 m
<i>Epinephelus marginatus</i>	• ^{20/}	•	•				B, s-50 m
<i>Serranus cabrilla</i>	An	An	EA		N-n		B, s-160 m
XCallanthidae							
<i>XCallanthias legras</i>	•	•	✓	N		N	B
Epigonidae							
<i>Epigonus constanciae</i>	•	✓	N		N-n		B, 200-600 m
<i>E. denticulatus</i>	•	EA	WB		N-c	N	B, 200-830 m
<i>E. pandionis</i>	•	N, n	EA-s	N		N	BP, 260-450 m
<i>E. robustus</i>	•	•	✓(SA-w)				B, 800-1200 m
<i>E. telescopus</i>	•	✓	WB	N	N-c		BP, 75-1200 m
Pomatomidae							
<i>Pomatomus saltatrix</i>	N	EA	EA	N		N	P, 2-200 m
Rachycentridae							
<i>Rachycentron canadum</i>	N	ETA	EA				P
XEcheneidae							
<i>XRemora brachyptera</i>	-	EA	EA	N			

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
Carangidae							
<i>Chloroscombrus chrysurus</i>	N	An	WB				P
<i>Decapterus punctatus</i>	N	ETA-s	WB				P, BP, s-100 m
X <i>D. rhonchus</i>	An	•	•	N			
<i>Lichia amia</i>	N	EA	EA				P, s-50 m
X <i>Naucrates ductor</i>	An	An	✓		N-n		P
X <i>Pseudocaranx dentex</i>	✓	EA-s	EA				BP
<i>Selene dorsalis</i>	N-n	EA	N-n				BP, s-60 m
<i>Seriola lalandi</i>	SA	EA-s	✓				BP
<i>Trachurus capensis</i>	N	EA-s	•	N		N	P
X <i>T. trachurus</i> ^{21/}	✓	✓	EA		N-c		P
<i>T. trecae</i>	✓	An	•			N	BP
Coryphaenidae							
<i>Coryphaena equiselis</i>	N	✓	✓				E
<i>C. hippurus</i>	N	EA	EA-s				E
Bramidae							
<i>Brama brama</i>	N✓	EA	N-s		N-s	N	M, s-400
X <i>Brama dussumieri</i>	-	EA-s	•				P
<i>Taractes rubescens</i>	-	EA	•	N	N-n, c	N	M, s-300 m
<i>Taractichthys longipinnis</i>	N	N	N-n,c			N	P
XCaristiidae							
X <i>Caristius groenlandicus</i>	•	✓	N-s		N-s ^{22/}		P, 100-200 m
Emmelichthyidae							
<i>Emmelichthys nitidus nitidus</i>	-	•	✓(SA-n)	N	N-s	N	BP, 100-500 m
Haemulidae							
X <i>Plectorhinchus mediterraneus</i>	An	An	•	N			B, s-100 m
<i>Pomadasys jubelini</i>	An	An	N-n	N			N, s-100 m
<i>P. olivaceum</i>	•	•	✓	N			n
XLobotidae							
X <i>Lobotes surinamensis</i>	✓	✓	✓				n
Sparidae							
<i>Chrysoblephus laticeps</i>	•	•	✓	N		N	B, s-100 m
<i>Dentex barnardi</i>	An	An	An	N			BP, 40-100 m
<i>D. macrophthalmus</i>	N	N	WB	N	N-n	N	BP, 30 -500 m
X <i>Diplodus cervinus cervinus</i>	N	EA-s	•				BP, 30-300 m
<i>D. sargus capensis</i>	N	EA-s	N	N		N	BP, s-50 m
X <i>D. vulgaris</i>	N	EA-s	•				BP, s-160 m
<i>Lithognathus aureti</i>	-	N	N	N		N	BP
<i>L. lithognathus</i>			N				
<i>L. mormyrus</i>	N	ETA-s	N	N		N	BP, s-150 m

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
X <i>L. olivieri</i>	-	N	•				
<i>Pachymetopon blochii</i>	N	N	N	N			B, s
<i>Pagrus auriga</i>	An	An	•	N			BP, s-170 m
<i>Pterogymnus laniarius</i>	•	•	✓	N			BP, 20-140 m
<i>Rhabdosargus globiceps</i>	N	N	N	N			BP, s-100 m
<i>Sarpa salpa</i>	N	N	N				BP, s-70 m
<i>Spondyllosoma cantharus</i>	An	An	•	N		N	BP, s-300 m
Sciaenidae							
<i>Argyrosomus coronus</i> ^{33/}							
<i>A. inodorus</i> ^{33/}	N	N	N	N	N-n	N	B, 15-150 m
<i>Atractoscion aequidens</i>	N	ETA-s	An	N		N	P, 15-200 m
<i>Pteroscion peli</i>	An	An	•			N	BP, s-200 m
<i>Umbrina canariensis</i>	An	An	EA-s	N		N	B, s-300 m
X <i>U. ronchus</i>	An	An	EA-s				B, 20-200 m
Dichistiidae							
<i>Dichistius capensis</i>	•	•	N				B
XChaetodontidae							
X <i>Chaetodon hoefleri</i>	An	An	•				
Cheilodactylidae							
<i>Cheilodactylus fasciatus</i>	•	•	N	N			B, s-25 m
<i>Chirodactylus brachydactylus</i>	•	•	N, C-S				B, s-240 m
<i>C. grandis</i>	•	•	N, C-S				B, 20-150 m
Mugilidae							
<i>Liza dumerili</i>	N	EA-s	N				n
<i>L. richardsonii</i>	N	•	N	N			n
<i>Mugil cephalus</i>	N	EA	EA				n
Sphyraenidae							
<i>Sphyraena afra</i>	N	N	N				P, s-75 m
XZoarcidae							
X <i>Lycodes atlanticus</i> ^{34/}	•	N	✓	N	N-c		B, 630-1 920 m
XChiasmodontidae							
X <i>Kali macrodon</i>	•	EA-s	✓				PB, >1500 m
X <i>K. inidica</i>	•	EA-s	✓				PB, >1500 m
X <i>K. parri</i>	•	EA-s	✓				PB, >1500 m
XUranoscopidae							
X <i>Pleuroscopus pseudodorsalis</i>	•	•	✓		N-s		B
XPercophididae							
X <i>Bembrops heterurus</i>	An	An	•	N			B, 50-400 m
XBlenniidae							

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
X <i>Parablennius cornutus</i>	•	•	N	N			B
X <i>P. pilicornis</i>	-	N	N				B, 0,5-25 m
X <i>Scartella emarginata</i>	-	•	N				B
Ammodytidae							
<i>Gymnamodytes capensis</i>	•	✓	N				B
Callionymidae							
<i>Paracallionymus costatus</i>	•	N-S	N-S	N	N-S	N	B
Gobiidae							
X <i>Caffrogobius nudiceps</i>	-	N	N-C, S				B
X <i>C. saldanha</i>	-	N	✓				B, s-7 m
X <i>Lesuerigobius koumansi</i>	-	N	•				B, 50-135 m
X <i>L. sanzoi</i>	-	N	•		N-n		B, 47-117 m
<i>Sufflogobius bibarbatus</i>	-	N	✓	N	N-C ^{23/}	N	B, s-340 m
XClinidae							
X <i>Blennioclinus brachycephalus</i>	•	•	N-S				B, s
X <i>Blennophis anguillaris</i>	•	•	N-S	N			B, s
X <i>Clinus acuminatus</i>	•	•	N-S	N			B, s
X <i>C. agilis</i>	•	•	N-C, S	N			B, s
X <i>C. heterodon</i>	•	•	N-C				B, s
X <i>C. rotundifrons</i>	•	•	N, S				B, s
X <i>C. superciliosus</i>	•	•	N	N			B, s
X <i>C. taurus</i>	•	•	N	N			B, s
X <i>C. venustis</i>	•	•					B, s
X <i>Muraenoclinus dorsalis</i>	•	•	N-S				B, s
X <i>Pavoclinus pavo</i>	•	•	N-S				B, s
XLuvaridae							
X <i>Luvarus imperialis</i>	•	EA	EA				E
XScombrobracidae							
X <i>Scombrobrax heterolepis</i>	•	EA	✓				M, 100-900 m
Gempylidae							
<i>Diplospinus multistriatus</i>	-	ETA	N				M, 100-1000 m
<i>Gempylus serpens</i>	-	ETA	EA				E, M, s-200 m
<i>Lepidocybium flavobrunneum</i>	N	An	EA				P, s-200 m
<i>Nealotus tripes</i>	-	ETA	•				E, M, s-600 m
<i>Nesiararchus nasutus</i>	-	ETA	•				BP, 200-1200 m
<i>Paradiplospinus gracilis</i>	-	N	N	N	N-t	N	BP, 368-626 m
<i>Promethichthys prometheus</i>	N	ETA-s	•				BP, 100-750 m
<i>Ruvettus pretiosus</i>	N	ETA-s	•		N-s	N	BP, 100-700 m

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
<i>Thyrsites atun</i>	N	An	EA-s		N-s	N	BP, n
Trichiuridae							
<i>Aphanopus microphthalmus</i>	-	•	✓				BP, 810-1020 m
<i>A. mikhailini</i>	-	N	N				BP, 1035-2000 m
<i>Benthodesmus tenuis</i>	-	An	•				BP, 200-850 m
<i>Lepidopus caudatus</i>	N	EA-s	EA		N-n, c	N	BP, s-400 m
<i>Trichiurus lepturus</i>	N	EA	EA		N-n	N	BP, s-350 m
Scombridae							
<i>Allothunnus fallai</i>	•	•	WB				E
<i>Katsuwonus pelamis</i>	N	ETA	EA				E
<i>Sarda sarda</i>	N	N	N, n			N	E, n
<i>Scomber japonicus</i>	An	✓	EA	N	N-t	N	E, BP, 250-300 m
<i>Thunnus alalunga</i>	N	ETA	EA				E
<i>T. albacares</i>	N	ETA	EA			N	E
<i>T. obesus</i>	N	ETA	EA				E
Xiphiidae							
<i>Xiphias gladius</i>	N	ETA	N				E
Istiophoridae							
<i>Istiophorus platypterus</i> ^{24/}	N	ETA	EA				E
<i>Makaira nigricans</i>	N	ETA	EA				E
<i>Tetrapturus albidus</i>	N	ETA	EA				E
<i>T. pfluegeri</i>	N	ETA	EA				E
Centrolophidae							
<i>Centrolophus niger</i>	✓	EA	EA	N	N-c	N	E, M
<i>Hyperoglyphe moselii</i>	N	EA-s	EA-s		N-t ^{25/}	N	M, >270 m
<i>Schedophilus huttoni</i>	-	EA	N	N	N-s	N	M
<i>S. pemarko</i>	An	An	EA-s				BP, 100-500 m
<i>S. velaini</i> (= <i>S. ovalis</i>)	✓	EA	✓		N-s, C ^{26/}		E
Nomeidae							
<i>Cubiceps baxteri</i>	-	EA	EA				E, M
<i>C. caeruleus</i>	•	•	EA-s		N-s ^{27/}	N	
<i>C. capensis</i>	-	✓	EA				E, M
<i>C. pauciradiatus</i>	-	EA	EA				P
<i>Psenes arafurensis</i>	-	EA	EA				P
<i>P. pellucidus</i>	-	N	✓		N-c		P, M, B
XAriommidae							
<i>XAriomma melanum</i>	An	An	An				BP, 200-600 m
Stromateidae							
<i>Stromateus fiatola</i>	N	EA	EA	N	N-n		P, n, 10-70 m
Tetragonuridae							
<i>Tetragonurus atlanticus</i>	-	EA	EA			N	P, s-800 m

TAXA	FAO ECA	CLOFETA	Smith's	MFMR	MZM	Nansen	Habitat Notes
<i>T. cuvieri</i>	-	EA	EA	N	N-s, c	N	P, s-800 m
PLEURONECTIFORMES							
X Citharidae							
X <i>Citharus linguatula</i>	An	ETA	•				B
Bothidae							
<i>Arnoglossus capensis</i>	An	An	N		N-n		B, s-200 m
<i>A. imperialis</i>	N	An	•			N	B, 15-350 m
<i>Chascanopsetta lugubris</i>	N	An	✓		N-n		M, 200-400 m
<i>Monolene microstoma</i>	✓	✓	•			N	M, 235-650 m
<i>Syacium micrurum</i>	An	An	WB				E, n 25-200 m
Soleidae							
<i>Austroglossus microlepis</i>	•	N-c, n	N	N	N-c	N	M, 100-400 m
<i>A. pectoralis</i>	•	N-c n	•		N-n		M, 100-400 m
<i>Dicologlossa cuneata</i>	N	An	N	N	N-n	N	B, n, 30-460 m
<i>Heteromycteris capensis</i>	•	•	N, c-s				B, 1-25 m
<i>H. proboscideus</i>	-	N-n	•				n, 5-37 m
<i>Monochirus luteus</i>	-	•	N		N-n ^{28/}		B, 10-80 m
Cynoglossidae							
<i>Cynoglossus capensis</i>	•	•	N		N-s	N	B
<i>C. zanzibarensis</i>	•	•	SA-w			N	B
<i>Symphurus normani</i>	-	N	•		N-n		B, 55-80 m
TETRAODONTIFORMES							
X Balistidae							
X <i>Rhinecanthus aculeatus</i>	•	EA	✓				B, s-50 m
X Ostraciidae							
X <i>Lactoria diaphana</i>	•	•	✓	N			P
Tetraodontidae							
<i>Lagocephalus lagocephalus</i>	-	EA	WB				P
<i>L. laevigatus</i>	An	An	•				P
X <i>Sphoeroides pachygaster</i>	-	EA	EA				P, 100-400 m
X Diodontidae							
X <i>Chilomycterus reticulatus</i>	-	ETA	EA			N	n, s-60 m
X <i>Diodon holocanthus</i>	-	ETA	EA				E
X <i>D. hystrix</i>	-	ETA	EA				E
X Molidae							
X <i>Mola mola</i>	-	EA	EA			N	E

1/ Listed as *Mystrophis crosnieri*.2/ Whitehead and Wongratana (1986) report this species from Namibia, but later, Whitehead, Nelsen and Wongratana (1988) list this species from only the western Pacific; this species is also sometimes listed from Namibia as *Engraulis encrasicolus*.3/ Listed as *Argyropelecus lynchus lynchus*.

- 4/ Listed as *Astronosthes filiter*.
- 5/ Listed as *Opostomias gibsonpacei*.
- 6/ *Chlorophthalmus atlanticus* is a junior synonym of *C. agassizi*.
- 7/ Listed as part of the species complex of *C. Agassizi*.
- 8/ Listed as *Macroparalepis macrogelium*.
- 9/ Sometimes listed in family Sudidae.
- 10/ Listed as *Brosmiculus imberbis*.
- 11/ Reported from Namibia in Cohen et al., 1990.
- 12/ Listed as *Coelorhynchus areu*.
- 13/ Listed as *Mahia matamua*.
- 14/ Listed as *Ventrifossa africana*.
- 15/ According to Cohen et al. (1990) this species does not occur in Namibia although other sources report it does; further study is needed.
- 16/ Not treated but states that Karrer, 1973 reports specimens of this species from Namibia.
- 18/ Listed as *Trachipterus jacksonensis*.
- 17/ Listed as *Chatrabus melanurus*.
- 19/ The genus *Howella* is sometimes listed in the Percichthyidae and Acropomatidae and its family placement is uncertain.
- 20/ Heemstra and Randall (1993) list this species from the coast of Namibia.
- 21/ Smith-Vaniz (1992, personal communication) does not believe *Trachurus capensis* is a valid species but admits that an adequate series of this species along the coast of Africa are not available.
- 22/ Listed as *Platyberyx groenlandicus*.
- 23/ Listed as *Nematogobius bibarbatus*.
- 24/ Listed as *Istiophorus albicans*.
- 25/ Listed as *Hyperoglyphe mathewesi*.
- 26/ Listed as *Schedophilus medusophagus*.
- 27/ Listed as *Cubiceps gracilis* which is not supposed to occur south of about 20°N.
- 28/ Listed as *Buglossidium luteum*.
- 29/ Record based on personal communication from P.A. Hulley.
- 30/ Previously listed as *Coelorinchus fasciatus*.
- 31/ Record from Iwamoto and Anderson, 1994.
- 32/ Leslie and Grant, 1991.
- 33/ Griffiths and Heemstra (1995). *Argyrosomus inodrus* previously reported as *A. hololepidotus*.
- 34/ Previously reported as *Lycodes agulhensis*.

Marine Mammals

TAXA	Strandings	Sightings	Accidental catch	Previous Whaling
CETACEA				
MYSTICETI				
Balaenidae				
<i>Eubalaena australis</i>	N	N		N
Neobalaenidae				
<i>Caperea marginata</i>	N			
Balaenopteridae				
<i>Balaenoptera acutorostrata</i>	N	N		
<i>B. borealis</i>				(N)
<i>B. edeni</i>		(N)		
<i>B. musculus</i>				N
<i>B. physalus</i>				N
<i>Megaptera novaeangliae</i>	N	N		N
ODONTOCETI				
Physeteridae				
<i>Physeter catodon</i>	N			N
Kogiidae				
<i>Kogia breviceps</i>	N			
<i>K. simus</i>		(N)		
<i>Hyperodon planifrons</i>		(N)		
Ziphiidae				
<i>Berardius arnuxii</i>		(N)		
<i>Ziphius cavirostris</i>	N			
<i>Mesoplodon grayi</i>	N			
<i>M. layardii</i>	N			
<i>M. hectori</i>		(N)		
<i>M. densirostris</i>	N			
Delphinidae				
<i>Orcinus orca</i>		N		
<i>Globicephala melas</i>	N			
<i>Pseudorca crassidens</i>	N			
<i>Feresa attenuata</i>	N			
<i>Peponocephala electra</i>	N			
<i>Steno bredanensis</i>	N			
<i>Lagenorhynchus obscurus</i>	N	N		
<i>Grampus griseus</i>	N			
<i>Tursiops truncatus</i>	N	N		
<i>Stenella coeruleoalba</i>		(N)		
<i>Delphinus delphis</i>	N		N	

TAXA	Strandings	Sightings	Accidental catch	Previous Whaling
<i>Lissodelphis peronii</i>		N		
<i>Cephalorhynchus heavisidii</i>	N	N	N	
PINNIPEDIA				
Otariidae				
<i>Arctocephalus pusillus pusillus</i>		N		N
<i>A. tropicales</i>		N		
Phocidae				
<i>Mirounga leonina</i>		N		
<i>M. leonina</i>		N		
<i>Hydrurga leptonyx</i>	N			

INDEX OF SCIENTIFIC AND VERNACULAR NAMES

Explanation of the System

- Italics* : Valid scientific names (genera and species) of species in the area.
- Italics* : Synonyms (genera and species) and valid species outside the area.
- ROMAN** : Family names.
- ROMAN : Names of groups, classes, orders, suborders, and subfamilies.
- Roman : FAO and vernacular names.

Note: The "Checklist of Fishes and Marine Mammals" is not indexed

A

Abadèche boulotte.	153	Aiguillat commun	86
Abadèche de Günther.	152	Aiguillat coq	87
Abadèche doigts	152	Aiguillat épinette	87
Abadèche du Cap	152	Aiguillat noir	83
Abadèche sans jambes	152	Aiguillat nez court	87
<i>Abraliopsis atlantica</i>	52	<i>alalunga, Thunnus</i>	186
<i>Abraliopsis gilchristi</i>	52	ALARIACEAE	25
<i>Abraliopsis hoylei pfefferi</i>	52	<i>alba, Raja</i>	94
Abuete cajeta	46	<i>albacares, Thunus</i>	186
Abuete negro	46	Albacore	186
<i>abyssicola, Bathyteuthis</i>	54	Albakoor	186
<i>Acanthephyra acanthitelsonis</i>	32	<i>albescens, Bassanago</i>	142
<i>acanthias, Squalus</i>	86	<i>albidus, Tetrapterus</i>	187
<i>acanthiger, Caelorinchus</i>	149	ALBULIDAE	13, 110, 141
<i>Acanthistius sebastoides</i>	165	ALBULIFORMES	110
<i>acanthitelsonis, Acanthephyra</i>	32	ALEPISAUROIDAE	15, 116
<i>Acanthocarpus brevispinis</i>	42	<i>Alepisaurus ferox</i>	116
<i>acanthonotus, Plesionika</i>	34	ALEPOCEPHALIDAE	14, 113, 144
Acedia	193	<i>Alepocephalus</i>	113
Acedia trompuda	194	<i>alessandrinii, Ancistrocheirus</i>	52
ACROPOMATIDAE	17, 128, 164	Alfonsino	162, 172
<i>aculeata, Squatina</i>	88	Alfonsino besugo	157
<i>acus, Syngnathus</i>	126	Alfonsinos	124
<i>acutorostrata, Balaenoptera</i>	208	Alistado	30
Adlerrochen	99	Alitán de manchas amarillas	79
Aeodes	24	Alitán obscuro	79
<i>Aeodes orbitosa</i>	24	Allacha	142
<i>aequidens, Atractoscion</i>	177	Allache	142
<i>aequinotialis, Procellaria</i>	201	Alligatorhai	88
Afkykvis	168	<i>Allocyttus verrucosus</i>	160
<i>afra, Sphyræna</i>	179	Alloposid Squids	58
African barrelfish	188	ALLOPOSIDAE	11 - 12, 58
African matchbox crab	46	<i>Allothunnus fallai</i>	184
African moonfish	168	<i>Alopias</i>	73
African mud shrimp	3, 30	<i>Alopias superciliosus</i>	73, 78
African penguin	200	<i>Alopias vulpinus</i>	78
African sawtail catshark	78	ALOPIIDAE	12, 73, 78
African sawtail catshark	3	ALPHEIDAE	8, 29
African softnose skate	93	<i>Alpheopsis africana</i>	29
African spider shrimp	32	<i>Alpheus macrocheles</i>	29
African spoon-nose eel	141	<i>altavela, Gymnura</i>	91, 99
African weakfish	177	<i>altivela, Guentherus</i>	157
<i>africana, Alepheopsis</i>	29	Amberjacks	130
<i>africana, Macropetasma</i>	31	<i>americanus, Polyprion</i>	128, 164
<i>africana, Paralomis</i>	40	Amerikanischer Petersfisch	159
<i>africana, Solenocera</i>	3, 27, 30	<i>amia, Lichia</i>	168
<i>africanus, Hydrolagus</i>	101	AMMODYTIDAE	19, 135, 180
<i>africanus, Nematocarcinus</i>	32	Ancestro negro	157
Afrikanische Languste	37	Anchoa de Africa austral	143
Afrikanischer Adlerrochen	99	Anchoa de l'Afrique australe	143
Afrikanischer Pferdekopf	168	Anchoa de banco	167
Afrikanischer Umlerfisch	177	Anchovie	112
<i>agassizi, Chlorophthalmus</i>	145	<i>Ancistrocheirus alessandrinii</i>	52
<i>agassizi, Opisthoteuthis</i>	57	<i>ancistrotia, Merhippolyte</i>	29
<i>agax, Sardinops</i>	143	Andorrève du Cap	171
Aguila marina	99	<i>andresi, Periclimenes</i>	28
Aguja azul	187	Ange de mer epineux	88
Aguja blanca	187	Ange de mer ocellé	88
Aguja picuda	188	Angel sharks	75
<i>agulhasensis, Merhippolyte</i>	29	Angelfish	170
Aigle commun	99	Angelote espinudo	88
Aigle vachette	99	Angelvis	170
		Anglerfishes	119, 128
		Anglette africaine	46

Anglette commune	46	Arrowhead dogfish	84
Angola flying squid	66	<i>asperrimus</i> , <i>Neolithodes</i>	44
<i>angolensis</i> , <i>Inachus</i>	41	<i>Astronesthes</i>	115
<i>angolensis</i> , <i>Todarodes sagittatus</i>	49, 66	ASTRONESTHIDAE	15, 115
ANGUILLIFORMES	111	Atéleopode de Loppe	157
<i>anguineus</i> , <i>Chlamydoselachus</i>	77	Atéleopode grande negeoire	157
<i>annulatus</i> , <i>Rhinobatos</i>	92	ATELEOPODIDAE	16, 123, 157
Anoli serpent	145	Ateleopodids	123
ANOMURA	40	<i>Atherina breviceps</i>	122, 154
<i>Anoplogaster cornuta</i>	124	Athérine du Cap	154
ANOLOGASTERIDAE	17, 124	ATHERINIDAE	122, 154
<i>antarctica</i> , <i>Catharacta</i>	206	ATHERINIFORMES	122
ANTENNARIIDAE	16, 120	Atlantic bonito	185
<i>Antennarius striatus</i>	120	Atlantic bumper	167
<i>Anthias anthias</i>	165	Atlantic electric ray	92
<i>anthias</i> , <i>Anthias</i>	165	Atlantic pomfret	170
<i>Antigonia capros</i>	126	Atlantic saury	155
<i>Antimora rostrata</i>	148	Atlantic spotted grunter	171
<i>Aphanopus microphthalmus</i>	183	Atlantic weasel shark	81
<i>Aphanopus mikhailini</i>	183	<i>atlantica</i> , <i>Abrialopsis</i>	52
<i>Apristurus</i>	73	<i>atlantica</i> , <i>Leachia</i>	56
<i>aquila</i> , <i>Myliobatis</i>	99	<i>atlantica</i> , <i>Nephropsis</i>	38
<i>arafurensis</i> , <i>Psenes</i>	190	<i>atlantica</i> , <i>Rhinochimaera</i>	102
Araignée européenne	45	<i>atlanticus</i> , <i>Chlorophthalmus</i>	145
ARCHITEUTHIDAE	11, 53	<i>atlanticus</i> , <i>Hoplostethus</i>	158
<i>Architeuthis (dux) sanctipauli</i>	53	<i>atlanticus</i> , <i>Lycodes</i>	134
Arctic skua	206	<i>atlanticus</i> , <i>Tetragonurus</i>	191
<i>arcticus</i> , <i>Sergestes</i>	27	Atlantiese bonito	185
<i>Arctocephalus pusillus pusillus</i>	211 - 212	Atlantiese drilvis	92
<i>Arctocephalus tropicalis</i>	211 - 212	Atlantiese gespikkelde knorder	171
Arendrog	99	Atlantiese stamper	167
<i>argenteus</i> , <i>Phosichthys</i>	114	Atlantiese weselhaai	81
ARGENTINIDAE	113	Atlantische rote Riesengarnele	31
Argenvill's limpet	48	Atlantischer Makrelenhecht	155
<i>argenvillei</i> , <i>Patella</i>	48	Atlantischer Sägebauch	158
<i>Argonauta nodosa</i>	58	Atlantischer Wrackbarsch	164
<i>Argonauta sp.</i>	58	<i>Atractoscion aequidens</i>	177
ARGONAUTIDAE	12, 58	Atun	183
Argonauts	58	Atún blanco	186
<i>Argyropelecus</i>	114	Atún lanzón	184
<i>Argyrosomus coronus</i>	176	<i>atun</i> , <i>Thyrsites</i>	2, 183
<i>Argyrosomus hololepidotus</i>	176	AULOPIFORMES	116
<i>Argyrosomus inodorus</i>	176	<i>aureti</i> , <i>Lithognathus</i>	173
ARIIDAE	14, 112, 144	<i>auriga</i> , <i>Pagrus</i>	174
<i>Ariomma melanum</i>	138	<i>aurita</i> , <i>Sardinella</i>	142
ARIOMMATIDAE	20, 138	<i>australis</i> , <i>Callianassa</i>	36
Ariommatids	138	<i>australis</i> , <i>Lampanyctus</i>	146
Aristeid shrimps	27	<i>australis</i> , <i>Macropipus</i>	43
ARISTEIDAE	8, 27, 30 - 31	<i>australis</i> , <i>Sepia</i>	3, 59
<i>Aristeomorpha foliacea</i>	30	<i>Australis</i> , <i>Eubalaena</i>	208
<i>Aristeus varidens</i>	3, 30	Australische	168
<i>Arius latiscutatus</i>	112, 144	<i>Austroglossus microlepis</i>	193
Arktiese roofmeeu	205	<i>Austroglossus pectoralis</i>	193
<i>armata</i> , <i>Galiteuthis</i>	56	<i>Austrorossia enigmatica</i> , <i>Rossia</i>	51
<i>armatus</i> , <i>Sergestes</i>	27	Axiid lobsters	36
Armoured searobins	127	AXIIDAE	9
Armoured shrimps	29		
Arms Squids	55	B	
Arnoglosse du Cap	191	Baardman	177
Arnoglosse impérial	192	Backwater butterflyray	99
<i>Arnoglossus blachei</i>	192	Bagre barba blanca	144
<i>Arnoglossus capensis</i>	192	Bagre de Gambia	144
<i>Arnoglossus imperialis</i>	192	<i>Bajacalifornia megalops</i>	113, 144
<i>arrosor</i> , <i>Dardanus</i>	40	<i>balaenarum</i> , <i>Sterna</i>	199

BALAEINIDAE	207	Benguela hake	7, 147
<i>Balaenoptera acutorostrata</i>	208	<i>benguela, Munida</i>	40
<i>Balaenoptera physalus</i>	207	Benguela-Seehecht	147
BALAEOPTERIDAE	207 - 208	<i>Benthoctopus sp.</i>	58
Balaou atlantique	155	<i>bergii, Sterna</i>	199
Balaou nain.	155	BERYCIDAE	16, 124, 157
Baleen whales	206, 207	BERYCIFORMES	124
Baleine á bosse	208	Béryx long	157
Baleine australe	207	<i>Beryx splendens</i>	157, 162, 172
Baleine pygmée	207	Beskilderde-akkedisvis	145
BALISTIDAE	20, 140	Beukelaar dorie	159
Ballena franca austral.	207	<i>bibarbatus, Sufflogobius</i>	2, 180, 200
Ballena franca pigmea	207	<i>bicornis, Exodromidia</i>	41
Bambou de mer	25	Biethai	80
Bambú de mar	25	Bigeye slickhead	144
Banane gisu	141	Bigeye squaretail	191
Bandrochen	94	Bigeye tuna.	186
BANGIACEAE	24	Bigscale pomfret	171
Bank cormorant	199, 204	Big scales	124
Bank steenbras	178	Bigthorn skate	95
Banksteenbras	178	Bindenbrasse	173
<i>banski, Onychoteuthis</i>	63	Birdbeak dogfish	84
Barbel	144	Biscuit skate	97
Barbier hirondelle	165	BIVALVES	47
Barbillon blanc	144	BIVALVES AND GASTROPODS	10
<i>Barbourisia rufa</i>	125	Blaasop	195
BARBOURISIIDAE	17, 125	<i>blachei, Arnoglossus</i>	192
Barnard's dentex.	172	Black butterflyfish	188
<i>barnardi, Calocaris</i>	36	Black dogfish	83
<i>barnardi, Dentex</i>	172	Black fish	188
<i>barnardi, Raja</i>	95	Black gemfish	181
Barracudas	133	Black mackerel	136
Barracudinas	116	Black Mussel	47
Barrelfish	138	Black octopus	57
Barrinaire del Cabo	180	Black oreo	160
<i>bartami, Ommastrephes</i>	65	Black ruff	188
<i>basi, Dorynchus</i>	41	Black seabream	176
Basking sharks	73	Black slimehead	158
<i>Bassanago albescent</i>	142	Black snake mackerel	181
Bastardmakrele	169	Blackbelly rosefish	3, 162
Battishes	120	Black-browed albatross	200
<i>Bathygadus melanobranchus</i>	149	Blackchins	117
BATHYLAGIDAE	14, 113	Blackfishes	138
<i>Bathylagus glacialis</i>	113	Blacktail	173
<i>Bathynectes piperitus</i>	43, 46	Blackwing flyingfish	155
<i>Bathypolypus valdiviae</i>	58	<i>blainvillei, Squalus</i>	87
<i>Bathyraja smithii</i>	93	Blainvilles Dornhai	87
BATHYTEUTHIDAE	11, 54	Blancmange skate	98
<i>Bathyteuthis abyssicola</i>	54	Blaubarsch	167
<i>Bathyuroconger vicinus</i>	142	Blauer Marlin	187
BATOID FISHES	89	Blaufisch	167
BATRACHOIDIDAE	15, 119, 153	Blauhai	82
BATRACHOIDIFORMES	128	Blaumaul	162
Bauchstreifiger Bonito	185	BLENNIIDAE	19, 135
Baudroie africaine	154	Blennies	135
Baudroie du Cap	154	<i>blochii, Pachymetopon</i>	174
Bearded goby	200	<i>blochii, Rhinobatos</i>	93
Bécasse de mer	161	Blou bottervis	191
Bécasse de mer tacheté	161	Blou marlyn.	187
Bécune guinéenne.	179	Blou pylstert	98
<i>bellmarleyi, Metacrangon jacqueti</i>	29	Bloubekmalmok	200
<i>belloci, Pterothrissus</i>	3, 110, 141	Blouhaai	82
BELONIFORMES	122	Blue butterflyfish	191
<i>Bembrops heterurus</i>	134	Blue marlin	187

Blue shark	82	<i>budegassa, Lophius</i>	154
Blue stingray	98	Bull ray	99
Blue whale	207	Bullet cuttlefish	60
Bluefish	129, 167	Bulrog	99
Bluntnose guitarfish	93	Butterfish	191
Bluntnose lizardfish	145	Butterfishes	138
Bluntnose sixgill shark	76	Butterflyfishes	133
Bluntnose spiny dogfish	87	Butterflyrays	91
<i>boa boa, Stomias</i>	115	Buttersnoek	184
<i>boa, Stomias boa</i>	115	C	
Boarfishes	126	Caballa	185
Bobtailed Squids	51	Cabellera	152
Boe drum	177	Cabezudo de barbas	180
Boe-Umberfisch	177	Cabrilla	165
Boggel-platannavis	153	<i>cabrilla, Serranus</i>	165
Bogue lanternfish	146	Cachalot	208
Bombache boé	177	Cachalote	208
Bonefishes	110	Cachucho	172
Bonite à dos rayé	185	Cacique erizado	161
Bonite à ventre rayé	185	Cacique hérisson	161
Bonito	185	Cacique liso	161
Bonito atlantico	185	Cacique lisse	161
Bonitos	137	<i>cadenati, Coloconger</i>	111
BONY FISHES	13	<i>cadenti, Hoplostethus</i>	158
<i>boops, Symbolophorus</i>	146	<i>caelorrhincus, Caelorrhincus polli</i>	149
BOTHIDAE	20, 139, 191 - 192	<i>Caelorinchus acanthiger</i>	149
Bottersnoek	184	<i>Caelorinchus braueri</i>	149
Bottlenose dolphin	210	<i>Caelorinchus caelorrhincus polli</i>	149
Bouquet flàque	33	<i>Caelorinchus karrerae</i>	149
<i>bouvieri, Parapagurus</i>	40	<i>Caelorinchus matamua</i>	150
<i>bovinus, Pteromylaeus</i>	99	<i>Caelorinchus simorhynchus</i>	150
Box crabs	42	<i>caeruleus, Cubiceps</i>	190
Braamhaai	88	Caguama	197
BRACHIOTEUTHIDAE	11, 55, 64	Calamar dedal de Guinea	62
<i>Brachioteuthis picta</i>	55, 64	Calamar del Cabo	61
Brachsenmakrele	170	Calapa espinuda	45
<i>brachydactylus, Chirodactylus</i>	178	<i>Calappa pelii</i>	45
<i>brachyptera, Remora</i>	129	CALAPPIDAE	10, 42, 45
BRACHYURA	41	<i>calcea, Deania</i>	3, 84
<i>brachyurus, Carcharhinus</i>	81	Calderón comun	209
<i>brachyurus, Etmopterus</i>	85	CALLANTHIDAE	18, 129
<i>Brama brama</i>	170	<i>Callianassa australis</i>	36
<i>brama, Brama</i>	170	CALLIANASSIDAE	9, 36
Bramble shark	88	CALLIONYMIDAE	19, 135, 180
Bramble sharks	75	CALLORHINCHIDAE	13, 100 - 101
BRAMIDAE	18, 130, 170 - 171	<i>Callorhynchus capensis</i>	2, 101
Braquilluria moteada	64	Calmar doigtier de Guinée	62
<i>braueri, Caelorinchus</i>	149	Calmar du Cap	61
Brauner Zachenbarsch	165	<i>Calocaris barnardi</i>	36
<i>breviceps, Atherina</i>	122, 154	<i>Calonectris diomedea</i>	202
<i>brevirostris, Gennadas</i>	27	<i>Calostacus longispinis</i>	36
<i>brevispinis, Acanthocarpus</i>	42	Camarón araña africano	32
Bristlemouths	114	Camarón de altura	32
Broadbanded lanternshark	85	Camarón de oro	34
Broadnose sevengill shark	76	Camarón nadador	31
Broadtail shortfin squid	64	Camarón rayado menor	34
Brotulas	119	Camarón canguro	33
Brown chimaera	101	Camarón de casco	34
Brown mussel	47	Camarón verde	33
Brown ray	96	Camrón de poza	33
<i>brucus, Echinorhinus</i>	75, 88	Cañabota bocadulce	76
Bruinroofmeeu	205	Cañabota gata	76
Bruja terciopelo	86	Cañabota gris	76
Buckler dory	159		

<i>canadum, Rachycentron</i>	167	CAPROIDAE	17, 126
<i>canariensis, Umbrina</i>	177	<i>capros, Antigonía</i>	126
Canary drum	177	CARANGIDAE	18, 130, 167 - 169
Cangullo	171	<i>carbo, Phalacrocorax</i>	199, 204
<i>cantharus, Spondyllosoma</i>	176	CARCHARHINIDAE	12, 74, 81 - 82
Cape anchovy	3, 143	CARCHARHINIFORMES	73
Cape bonnetmouth	171	<i>Carcharhinus brachyurus</i>	81
Cape chimaera	101	<i>Carcharhinus signatus</i>	82
Cape cormorant	199, 203	<i>Carcharias taurus</i>	72, 77
Cape dory	2, 159	<i>carcharias, Carcharodon</i>	77
Cape dragonet	180	<i>Carcharodon carcharias</i>	77
Cape elephantfish	101	Cardenal	171
Cape flounder	191	<i>Caretta caretta</i>	197
cape fur seal	212	<i>caretta, Caretta</i>	197
Cape gannet	199, 203	CARIDEA	28
Cape gannets	155	Caridean Shrimps	28
Cape gurnard	2, 163	<i>carinata, Plesionika</i>	29
Cape hagfish	69	CARISTIIDAE	18, 131
Cape hake	2 - 3, 147	<i>Caristius groenlandicus</i>	131
Cape hen	201	<i>caroli, Neorissa</i>	51
Cape Hope squid	61	Casabe	167
Cape horse mackerel	4, 145, 169	Cáscara amarilla	24
Cape jagged lobster	38	Castagnole fauchoir	171
Cape John dory	159	Castagnole sombre	170
Cape laver	24	Castanette bicolore	178
Cape monk	154	Castanette des bancs	178
Cape numbfish	92	Castanette léopard	178
Cape petrel	201	Catfishes	112
Cape pigeon	201	<i>Catharacta antarctica</i>	205
Cape rock lobster	35, 37	<i>catodon, Physeter</i>	208
Cape rockfish	163	Catsharks	73
Cape salmon	177	<i>caudaspinosa, Raja</i>	94
Cape sandlance	180	<i>caudatus, Lepidopus</i>	2, 184
Cape scaldfish	191	<i>Caulophryne polynema</i>	121
Cape scorpionfish	163	CAULOPHYRIDAE	16, 121
Cape silverside	154	Caulophrynids	121
Cape sole	194	<i>cauta, Diomedea</i>	200
<i>capense, Daption</i>	201	Cazón	80
<i>capensis, Arnoglossus</i>	191	Centolla áspera	44
<i>capensis, Callorhinchus</i>	2, 101	Centolla europea	45
<i>capensis, Chelidonichthys</i>	2, 163	Centolla feroz	44
<i>capensis, Cubiceps</i>	190	<i>centrina, Oxynotus</i>	75, 88
<i>capensis, Cynoglossus</i>	194	Centrine du Cap	88
<i>capensis, Dichistius</i>	178	Centrolophe noir	188
<i>capensis, Diplodus sargus</i>	173	CENTROLOPHIDAE	19, 138, 188 - 189
<i>capensis, Engraulis</i>	3, 112, 143, 203	<i>Centrolophus niger</i>	188
<i>capensis, Gamnammodytes</i>	135	CENTROPHORIDAE	75, 82-85
<i>capensis, Genypterus</i>	2, 152	<i>Centrophorus</i>	75
<i>capensis, Gymnammodytes</i>	180	<i>Centrophorus granulosus</i>	82
<i>capensis, Heteromycteris</i>	194	<i>Centrophorus squamosus</i>	3, 83
<i>capensis, Lepidion</i>	148	<i>Centrophorus uyato</i>	82
<i>capensis, Merluccius</i>	2, 5, 7, 147	<i>Centroscyllium</i>	75
<i>capensis, Morus</i>	199, 203	<i>Centroscyllium fabricii</i>	83
<i>capensis, Myxine</i>	69	<i>Centroscymnus coelolepis</i>	83
<i>capensis, Narke</i>	92	<i>Centroscymnus crepidater</i>	84
<i>capensis, Phalacrocorax</i>	199, 203	<i>cepedianus, Notorynchus</i>	76
<i>capensis, Physiculus</i>	148	CEPHALOPODS	10, 49
<i>capensis, Porphyra</i>	24	<i>Cephalorhynchus heavisidii</i>	211
<i>capensis, Scyliorhinus</i>	79	<i>cephalus, Mugil</i>	179
<i>capensis, Trachurus</i>	3, 169	<i>Ceratias holboelli</i>	121
<i>capensis, Trachyscorpia</i>	163	CERATIIDAE	16, 121
<i>capensis, Xiphiurus</i>	152	Cerdo marino del Cabo	88
<i>capensis, Zeus</i>	2, 159	Cernier commun	164
<i>Caperea marginata</i>	208	Cetacea	206

Céteau	193	<i>chuni</i> , <i>Munidopsis</i>	40
Céteau trompue	194	Chucho vaca	99
CETOMIMIFORMES	125	Cicerello du Cap	180
CETORHINIDAE	12, 73	Cigale rouge	38
<i>Cetorhinus maximus</i>	73	Cigalo escarlata	38
Chacarona sureña	172	Cigarra roja	38
<i>chacei</i> , <i>Hymenopneustes</i>	27	Cintas rojas	24
<i>Chaceon chuni</i>	42	Cintilla	183
<i>Chaceon maritae</i>	5, 45	<i>cirrocephalus</i> , <i>Larus</i>	199
<i>Chaetodon hoefleri</i>	133	CITHARIDAE	20, 139
CHAETODONTIDAE	19, 133, 178	Citharids	139
Channel flounder	192	<i>clavata</i> , <i>Raja</i>	94, 97
<i>Chascanopsetta lugubris</i>	192	<i>clavicornis</i> , <i>Gennadas</i>	27
<i>Chatabrus damaranus</i>	153	Clingfishes	122
<i>Chatrabus melanurus</i>	153	CLINIDAE	19, 136
CHAULIODONTIDAE	14, 115	Clinids	136
<i>Chauliodus</i>	115	CLUPEIDAE	14, 112, 142 - 143
CHAUNACIDAE	16, 120	CLUPEIFORMES	112
<i>Chaunax pictus</i>	120	Cobia	167
CHEILODACTYLIDAE	19, 133, 178	Cobias	129
<i>Cheilodactylus fasciatus</i>	178	Cock shrimps	29
<i>Chelidonichthys capensis</i>	2, 163	Cods	7, 118
<i>Chelidonichthys queketti</i>	164	<i>coelolepis</i> , <i>Centroscymnus</i>	83
<i>Chelonia mydas</i>	197	<i>Coelorinchus fasciatus</i>	150
CHELONIIDAE	197 - 198	<i>coindetii</i> , <i>Illex</i>	64
Cherna	164	<i>Coloconger cadenati</i>	111
CHIASMODONTIDAE	19, 134	Coloconger eels	111
Chien rape	78	COLOCONGRIDAE	14, 111
<i>Chimaera sp.</i>	101	Comber	165
CHIMAERAS	13, 100	Combfin Squids	54
CHIMAERIDAE	13, 100 - 101	Comète quiaquia	167
CHIMAERIFORMES	100	Common clubhook squid	63
Chimère brunette	101	Common dolphinfish	170
Chimère de Raleigh	102	Common eagle ray	99
Chimère du Cap	101	Common octopus	68
Chimère faucillée	102	Common vermiculate cuttlefish	60
Chimère nez lance	102	Comorant	203
Chinchard cunène	169	<i>compagnoi</i> , <i>Etmopterus</i>	85
Chinchard du Cap	169	Compère lièvre	195
Chipiloua commun	67	Compère lisse	195
Chipirón volantín	67	<i>compressa</i> , <i>Patella</i>	24
<i>Chirodactylus brachydactylus</i>	178	<i>conchifer</i> , <i>Zenopsis</i>	159
<i>Chirodactylus grandis</i>	178	<i>confundens</i> , <i>Raja</i>	95
Chirostylid crabs	40	Conger eels	111
CHIROSTYLIDAE	9, 40	CONGIPODIDAE	17, 127, 161
CHIROTEUTHIDAE	11, 56	<i>Congiopodus spinifer</i>	161
<i>Chiroteuthis veranyi</i>	56	<i>Congiopodus torvus</i>	161
CHLAMYDOSELACHIDAE	12, 72, 77	Congre crin	142
<i>Chlamydoselachus anguineus</i>	72, 77	Congre denté	142
CHLOROPHTHALMIDAE	15, 116, 145	CONGRIDAE	14, 111, 142
<i>Chlorophthalmus atlanticus</i>	145	Congrio crin	142
<i>Chlorophthalmus punctatus</i>	145	Congrio dentado	142
CHLOROPHYTA	8, 25	Congriperla gruesa	153
<i>chlororhynchus</i> , <i>Diomedea</i>	202	<i>constanciae</i> , <i>Epigonus</i>	166
<i>Chloroscombrus chrysurus</i>	167	Copper shark	81
<i>Chlorotocus crassicornis</i>	33	CORACINIDAE	132
Choquito sin punta	59	<i>coriacea</i> , <i>Dermochelys</i>	198
<i>Chorisochismus dentex</i>	122	Cormoran du cap	204
<i>Choromytilus meridionalis</i>	47	Cornet crochu	63
<i>Chrysoblephus laticeps</i>	172	Cornet rugueux	62
<i>chrysurus</i> , <i>Chloroscombrus</i>	167	Cornetfishes	126
Chub mackerel	185	<i>cornuta</i> , <i>Anoplogaster</i>	124
<i>chuni</i> , <i>Chaceon</i>	42	<i>cornutus</i> , <i>Parablennius</i>	135

Corocoro aceituna 171
Corona meagre 176
coronatus, Phalacrocorax 199, 204
coronus, Argyrosomus 176
 Corvinata prieta 177
 Cory's shearwater 202
Coryphaena equiselis 169
Coryphaena hippurus 170
CORYPHAENIDAE 18, 130, 169 - 170
 Coryphène commune 170
 Coryphène dauphin 169
 Corysitid crabs 42
CORYSITIDAE 10, 42
costatus, Paracallionymus 135, 180
 Costurones 180
 Courbine pélin 177
 Cow sharks 72
 Cowfishes 140
 Crabe royale féroce 44
 Crabe royale grêle 44
CRABS 9, 39
 Cranch Squids 56
Cranchia scabra 56
CRANCHIIDAE 11, 56
 Crangonid shrimps 29
CRANGONIDAE 9, 29, 34
 Crapaud angolais 153
 Crapaud de Rossignol 153
 Crapaud guinéen 153
crassicornis, Chlorotocus 33
 Crayfish 37
crepidater, Centroscymnus 84
 Crevette araignée 32
 Crevette crâne 34
 Crevette dorée 34
 Crevette nageuse 31
 Crevette naine rayée 34
 Crevette rose du large 32
 Crevette verte 33
cristatus, Zu 156
cristimanus, Mursia 42
cristulatus, Monodaeus 43
 Crowned cormorant 199, 204
Cruriraja parcomaculata 93
CRYPTONEMIACEAE 24
ctenifer, Eulas 29
CTENOPTERYGIDAE 11, 54
Ctenopteryx sicula 54
Cubiceps caeruleus 190
Cubiceps capensis 190
cuneata, Dicologlossa 193
 Cunene horse mackerel 5, 169
 Cunene-Bastardmakrele 169
 Cusk eels 119
 Cutlassfishes 137, 184
 Cutthroat eels 111
 Cuttlefish 51
cuvieri, Paramola 44
cuvieri, Tetragonurus 191
 Cyclothone 114
CYNOGLOSSIDAE 20, 139, 194 - 195
Cynoglossus capensis 194
Cynoglossus zanzibariensis 195

D

dactylopterus, Helicolenus 3, 157, 162, 163, 172
dalgleishi, Xenolepidichthys 125
 Damara tern 199
 damaranus, Chatabrus 153
 Damba 178
Daption capense 201
Dardanus arrosor 40
 Dark pomfret 170
 Dark shyshark 79
 Darwin's slimehead 158
Darwini, Gephyroberyx 158
 Dassie 173
DASYATIDAE 13, 91, 98
Dasyatis marmorata 98
Dasyatis pastinaca 91, 98
Dasyatis violacea 98
 Dauphin aptere austral 210
 Dauphin d' Heaviside 210
 Dauphin sombre 209
Deania 75, 85
Deania calcea 3, 84
Deania profundorum 84
Deania quadrispinosum 85
Decapterus punctatus 167
 Deckfisch 191
 Deepsea crabs 42
 Deepsea red crab 45
 Deepsea shrimps 28
 Deepsea smelts 113
 Deepsea Squids 54
 Deepwater Cape hake 7, 147
 Deepwater cardinalfishes 129
 Deepwater hake 147
 Deepwater hermit crabs 40
 Deepwater rose shrimp 32
 Deepwater scorpionfish 163
 Degenfisch 184
 Delfín de heaviside 210
 Delfín liso austral 210
 Delfín obscuro 209
DELPHINIDAE 209 - 210
demersus, Spheniscus 199 - 200
 Denté à gros yeux 172
 Dente austral 172
Dentex barnardi 172
Dentex macrophthalmus 3, 157, 162, 172
dentex, Chorisochismus 122
denticulatus, Epigonus 166
 Dentiño 164
DERICHTHYIDAE 14, 111
DERMOCHELYIDAE 198
Dermochelys coriacea 198
 Devil anglers 120
diadema, Lycotheuthis 52
 Diamond dories 125
 Diamondback squid 67
diaphana, Lactoria 140
Diaphus hudsoni 145
Diaphus meadi 146
diapontius, Sergestes 27
Dibranchus 120

DICERATIIDAE	16, 121	<i>Echinoteuthis</i> sp.	56
DICHISTIDAE	18, 178	Echter Bonito	185
<i>Dichistius capensis</i>	178	<i>Ecklonia maxima</i>	24 - 25
Dickleibiger Thun	186	<i>Ectreposebastes imus</i>	162
<i>Dicologoglossa cuneata</i>	193	<i>edwardsi</i> , <i>Sergestes</i>	27
<i>Dicrolene intronigra</i>	152	<i>edwardsianus</i> , <i>Plesiopenaeus</i>	31
<i>Dicrolene pallidus</i>	152	Eelpouts	134
Diepwater-stokvis	147	Eenvin-drilvis	92
Digitate cusk eel	152	Electric rays	90, 92
<i>dimorphus</i> , <i>Sympagrus</i>	40	<i>Eledone thysanophora</i>	58
DIODONTIDAE	20, 140	<i>elegans</i> , <i>Palaemon</i>	33
DIOGENIDAE	9, 40	<i>elegans</i> , <i>Sepia</i>	59
<i>Diomedea cauta</i>	200	Elegant cuttlefish	59
<i>Diomedea chlororhynchus</i>	201	Elephant de mer	212
<i>Diomedea melanophris</i>	200	Elephant seal.	211
<i>diomedea</i> , <i>Calonectris</i>	202	Elephantfish	2, 100 - 101
DIOMEDEIDAE	20, 200 - 201	Elf	167
<i>Diplodus sargus capensis</i>	173	<i>elminensis</i> , <i>Perulibatrachus</i>	153
<i>Diplospinus multistriatus</i>	180	<i>elongata</i> , <i>Scorpaena</i>	163
DIRETMIDAE	16, 124, 157	Emissole lisse	80
<i>Diretmoides parini</i>	157	Emissole palombe.	80
Dirette de Parin	157	EMMELICHTHYIDAE	18, 131, 171
Dogfish Sharks	75	<i>Emmelichthys nitidus nitidus</i>	2, 171
Dogfishes	75	Encornet bras courts orné	64
Dolphinfish	130, 170	Encornet dos orange	65
Dolphins	208 - 210	Encornet volant	65
<i>dominicanus</i> , <i>Larus</i>	199	Encoronet rouge.	64
Donker skaamoog	79	<i>encrasicolus</i> , <i>Engraulis</i>	143
Dorade	170	Engelhaai	88
Dorade grise	176	ENGRAULIDAE	14, 112, 143
Dorado	169	<i>Engraulis capensis</i>	3, 112, 143, 203
Dorado comun	170	<i>Engraulis encrasicolus</i>	143
Dories	125	<i>Engraulis japonicus</i>	143
Doringrug-rog	94	<i>enigmatica</i> , <i>Rossia</i> (<i>Austrorossia</i>)	51
<i>dorsalis</i> , <i>Selene</i>	168	Enope squids	52
<i>Dorynchus basi</i>	41	ENOPLUTEUTHIDAE	11, 52
<i>doutrei</i> , <i>Raja</i>	95	Eperlan du large	145
Dragonets	135	Eperlan du large tacheté	145
Dragonnet-lyre du Cap	180	EPIGONIDAE	18, 129, 166
Drescher	78	<i>Epigonus constanciae</i>	166
Drescherhai	78	<i>Epigonus denticulatus</i>	166
Driftfishes.	138	<i>Epigonus pandionis</i>	166
DROMIIDAE	9, 41	<i>Epigonus robustus</i>	166
Drums	132	<i>Epigonus telescopus</i>	166
Duckbill eels	111	<i>Epinephelus guaza</i>	165
Duckbills	134	<i>Epinephelus marginatus</i>	165
Duiker	203	<i>Eptatretus hexatrema</i>	69
<i>dumerili</i> , <i>Liza</i>	179	<i>equiselis</i> , <i>Coryphaena</i>	169
Dusky dolphin	209	<i>Eretmochelys imbricata</i>	197
Dusky grouper	165	Escolar	181
Dusky kob	176	Escolar clavo	182
Düsterer Dornhai	83	Escolar de caval	181
(<i>dux</i>) <i>sanctipauli</i> , <i>Architeuthis</i>	53	Escolar magro	182
Dwarf saury	155	Escolar narigudo.	181
Dwerg-saurie	155	Escolar negro	181
E		Escolar oscuro	181
Eagle ray	91, 99	Escolar prometeo	182
East coast sole.	193	Escolar rayado	180
<i>Ebalia scandens</i>	41	Escolar-de-natura atlántico.	191
<i>ebblanae</i> , <i>Todaropsis</i>	3, 49, 66	Escolar-Schlangenmakrele	181
ECHENEIDAE	18, 129	Escolier	183
ECHINORHINIDAE	12, 75, 88	Escolier clair	182
<i>Echinorhinus brucus</i>	75, 88	Escolier élégant	182
		Escolier long nez	181

Escolier noir	181	Flyingfishes	122
Escolier rayé	180	Foca elephante del sur	212
Escolier reptile	181	Folger's scorpionfish	162
Escolier serpent	181	<i>folgori, Neomerinthe</i>	162
Espadon	187	<i>foliacea, Aristeomorpha</i>	30
Espetón de Guinea	179	Football fishes	121
Espinudo del Cabo	141	Fou du cap	203
Estornino	185	Frill sharks	72, 77
ETMOPTERIDAE	75, 83-86	Frilled shark	77
<i>Etmopterus</i>	75	Frilletjieshaai	77
<i>Etmopterus brachyurus</i>	85	Frogfishes	120
<i>Etmopterus compagnoi</i>	85	Fuchshai	78
<i>Etmopterus "gracilispinis"</i>	85	<i>Funchalia woodwardi</i>	31
<i>Etmopterus lucifer</i>	85	Fynstert-sambokhaai	78
<i>Etmopterus pusillus</i>	86		
Etrille menthe poivrée	46	G	
<i>Etrumeus teres</i>	142	GADIFORMES	7, 118
<i>Etrumeus whiteheadi</i>	142	GALATHEIDAE	9, 40
<i>Eubalaena australis</i>	207	<i>Galeichthys feliceps</i>	144
<i>Euchirograpsus liguricus</i>	43	<i>Galeorhinus galeus</i>	80
<i>Eugomphodus taurus</i>	77	<i>Galeus</i>	73
<i>Eulas ctenifer</i>	29	<i>Galeus polli</i>	3
<i>Eumunidae squamifera</i>	40	<i>galeus, Galeorhinus</i>	80
<i>Evermannella</i>	117	<i>Galiteuthis armata</i>	56
EVERMANNELLIDAE	15, 117	<i>Galiteuthis suhmi</i>	56
Exocet aile noire	155	Galjoen	178
Exocet volant	155	Galjoens	132
EXOCOETIDAE	16, 122, 155	Galjoin franc	178
<i>Exocoetus volitans</i>	155	Gallineta	162
<i>Exodromidia bicornis</i>	41	Gallineta rosada	163
<i>Exodromidia spinosa</i>	41	Galludo	87
<i>exutus, Lampogrammus</i>	152	Galludo espinilla	87
		Galludo ñato	87
F		Gamba carabinero	31
<i>faber, Zeus</i>	159	Gamba de fango	30
<i>fabricii, Centroscyllium</i>	83	Gamba española	30
<i>fallai, Allothunnus</i>	184	Gambon écarlat	31
False thornback skate	97	Gambon rayé	30
Fangtooth	124	Gambon rouge	30
<i>fasciatus, Cheilodactylus</i>	178	Ganner	203
<i>fasciatus, Coelorinchus</i>	150	Garneo	164
Fatheads	127	Garrick	168
Fausse limande paté	192	GASTROPODS	48
<i>faxoni, Lucifer</i>	27	Geel tongvis	194
<i>feliceps, Galeichthys</i>	144	Geelbek	177
Felsengarnele	33	Geelbekpylstormvoel	202
<i>ferox, Alepisaurus</i>	116	Geelneusmalmok	201
<i>ferox, Lithodes</i>	44	Geelpens-klipkabeljou	165
<i>fiatola, Stromateus</i>	191	Geelpootstormswael	202
Fiatole	191	Geelspikkel-kathaai	79
Fierce king crab	44	Geelvin-tuna	186
Fin whale	206, 207	Geflechte Stachelmakrele	167
Fingerfins	133	Geißbrasse	173
<i>Fistularia petimba</i>	126	Gelbflossenthun	186
FISTULARIIDAE	17, 126	Gelbschwanzmakrele	168
Flathead grey mullet	179	GELIDIACEAE	24
Flathead mullet	179	Gemeine Goldmakrele	170
Flatiron shark	88	Gemeine Pampel	191
<i>flavobrunneum, Lepidocybium</i>	181	<i>gemmata, Pterygioteuthis</i>	52
Fleshy moss	23	GEMPYLIDAE	19, 136, 180 - 183
Fliegender Fisch	155	<i>Gempylus serpens</i>	181
Flugfisch	155	<i>Gennadas brevirostris</i>	27
flying squid	3	<i>Gennadas clavicarpus</i>	27
Flying squids	55	<i>Genypterus capensis</i>	2, 152

<i>Gephyroberyx darwini</i>	158	Grand dauphin	211
Gerión de Guinea	45	Grand requin blanc	77
Gérion west-africain	45	Grande allache	143
Germon	186	Grande castagnole	170
GERYONIDAE	10, 45	<i>grandis</i> , <i>Chirodactylus</i>	178
Gespikkelde diepwater-skerpioenvis	162	<i>grandis</i> , <i>Sergia</i>	27
Gespikkelde opah	156	<i>grandis</i> , <i>Spectrunculus</i>	153
Gespikkelde sloothaaï	81	Graneledone sp	58
Gestreifte Meeräsche	179	Granite limpet	48
Gestreifter Thunfisch	185	<i>granitina</i> , <i>Patella</i>	48
Gewöhnliche Meeräsche	179	Granular limpet	48
Gewöhnlicher Adlerrochen	99	<i>granularis</i> , <i>Patella</i>	48
Ghost crabs	43	<i>granulosus</i> , <i>Centrophorus</i>	82
Ghost shrimps	36	GRAPSIDAE	9 - 10, 43, 46
Giant red shrimp	30	<i>Grapsus grapsus</i>	46
Giant Squids	53	<i>grapsus</i> , <i>Grapsus</i>	46
Giant yellowtail	168	Grauhai	76
<i>Gigartina radula</i>	23	Great white shark	77
<i>Gigartina stiriata</i>	23	Green sea turtle	197
GIGARTINACEAE	23	Green shrimp	33
<i>gilchristi</i> , <i>Abraliopsis</i>	52	Greeneyes	116
<i>gilchristi</i> , <i>Tripteryophycis</i>	148	Grenadiers	118, 149
<i>glacialis</i> , <i>Bathylagus</i>	113	Greyheaded gull	199
Gladde perdvís	161	Grimald's nylon shrimp	34
<i>gladius</i> , <i>Xiphias</i>	187	<i>grimaldi</i> , <i>Heterocarpus</i>	34
Glass shrimps	28	<i>grimaldi</i> , <i>Stereomastis</i>	36
<i>glauca</i> , <i>Prionace</i>	82	<i>grimaldii</i> , <i>Mastigoteuthis</i>	56
<i>glesne</i> , <i>Regalecus</i>	123	<i>griseus</i> , <i>Hexanchus</i>	76
<i>Globicephala melas</i>	209	<i>griseus</i> , <i>Puffinus</i>	202
Globicéphale noir	209	<i>groenlandicus</i> , <i>Caristius</i>	131
<i>globiceps</i> , <i>Rhabdosargus</i>	175	<i>groenlandicus</i> , <i>Himantolophus</i>	121
<i>Glyphocrangon longirostris</i>	29	<i>groenlandicus</i> , <i>Himantolophus</i>	121
GLYPHOCRANGONIDAE	9, 29	Grondeur sompat	171
<i>Glyphus marsupialis</i>	33	Grondin du Cap	163
Gobie pélagique	180	Grondin lyre	164
Gobies	135	Grondin mineur	164
GOBIESOCIDAE	122	Grootoog-denteks	172
GOBIESOCIFORMES	122	Grootoog-stompstert	191
GOBIIDAE	19, 135, 180	Grootoog-tuna	186
Goby	2	Grootskub-pomfret	171
Golden shrimp	34	Grooved mullet	179
Goldies	129	Groovy mullet	179
Goldmakrele	170	Großaugenthun Großaugiger	186
Goldstrieme	175	Großaugenzahnbrasse	172
Goneplacid crabs	42	Große Gabelmakrele	168
GONEPLACIDAE	10, 42	Große Geißbrasse	173
<i>Goneplax rhomboides</i>	42	Große Seespinne	45
<i>Gonostoma bathyphilum</i>	114	Großer Blauhais	82
<i>Gonostoma denudatum</i>	114	Großflossen-Grätenfisch	141
GONOSTOMATIDAE	14, 114	Großkopf-Meerüschke	179
Goret olive	171	Ground Sharks	73
Gotteslachs	156	Groupers	129
Goue sardinelle	142	Grundhai	86
Gracilaire commune	23	Grunts	131
Gracilaria común	23	Grysvlerk-pylstormvoël	202
<i>Gracilaria verrucosa</i>	23	<i>guaza</i> , <i>Epinephelus</i>	165
GRACILARIACEAE	23	<i>guentheri</i> , <i>Selachophidium</i>	152
<i>Gracilariopsis</i>	23	<i>guentheri</i> , <i>Setarches</i>	163
<i>gracilis</i> , <i>Paradiplospinus</i>	182	<i>Guentherus altivela</i>	157
<i>gracilis</i> , <i>Pontophilus</i>	29	Guinea-Barrakuda	179
<i>gracilispinis</i> , <i>Etmopterus</i>	85	Guinean barracuda	179
<i>grallator</i> , <i>Inachus</i>	41	Guinean thumbstall squid	62
GRAMMICOLEPIDIDAE	17, 125	Guinean toadfish	153
Grand cormoran	204	Guinese-barrakuda	179

- Guinese-platannavis 153
GUIARFISHES 89, 90
 Guitarra del Cabo 92
 Guitarra embotada 93
 Gulper shark 82
 Gunther's cuskeel 152
 Gurnards 127
guttatus, Lampris 123, 156
Gymnamodytes capensis 135, 180
Gymnura altavela 91
Gymnura natalensis 99
GYMNURIDAE 13, 91, 99
- H**
- Haarschwanz 184
 Haarstert 184
HAEMULIDAE 18, 131, 171
 Hagfishes 69
 Hairy conger 142
 Hairy octopus 57
 Hakes 7, 118, 145
HALOSAURIDAE 13, 110
 Halosaurs 110
Halosaurus ovenii 110
 Hammerhead sharks 74
Haploblepharus 73
Haploblepharus pictus 79
 Hardshell shrimp 34
 Harige seepaling 142
Harriotta raleighana 102
 Hartlaub's gull 199
hartlaubii, Larus 199
 Hawksbill sea turtle 197
 Heaviside's dolphin 210
heavisidii, Cephalorhynchus 210
 Hector's lanternfish 146
hectoris, Lampanycodes 146
Helicocranchia pfefferi 56
Helicolenus dactylopterus 3, 157, 162, 163, 172
HEMIGALEIDAE 12, 74, 81
hemingi, Triplophus 114
Heptanchias perlo 76
 Heringskönig 159
herklotsii, Scyllarides 38
 Hermit Crabs 40
 Herrera 174
 Herrera de la costa oeste 173
 Herrera del Cabo 173
 Herrings 112
hertwigi, Rochinia 41
Heterocarpus grimaldi 34
heterocarpus, Plesionika 29
heterochir, Neopilumnoplax 42
heterolepis, Scombrobrax 136
Heteromycteris capensis 194
Heteromycteris proboscideus 194
heterurus, Bembrops 134
HEXANCHIDAE 12, 72, 76
HEXANCHIFORMES 72
Hexanchus griseus 76
hexatrema, Eptatretus 69
hieronis, Sepia 60
 Highfin tadpole fish 157
HIMANTOLOPHIDAE 16, 121
Himantolophus groenlandicus 121
HIPPOLYTIDAE 8, 29
hippurus, Coryphaena 170
Hirundichthys rondeletii 155
HISTIOTEUTHIDAE 11, 54, 63
Histioteuthis reversa 63
Histioteuthus macrohista 54
Histioteuthus meleagroteuthis 54
Histioteuthus reversa 54
Histrio histrio 120
histrio, Histrio 120
hoeferli, Chaetodon 133
 Holbiche isard 79
holboelli, Ceratias 121
 Hollow oar weed 25
Holohalaelurus 73
Holohalaelurus regani 79
hololepidotus, Argyrosomus 176
 Homolid crabs 41
HOMOLIDAE 9, 41, 44
 Hondhaai 80
 Hooked Squids 53
 Hoplostète argenté 158
 Hoplostète de darwin 158
 Hoplostète noir 158
 Hoplostète orange 158
 Hoplostète scutelle 159
Hoplostethus atlanticus 158
Hoplostethus cadenati 158
Hoplostethus mediterraneus 158
Hoplostethus melanopus 3, 159
 Horned anglers 121
 Horse mackerels 3, 130
 Horsefishes 127
 Hottentot 174
 Hottentot seabream 174
 Hound sharks 74
Howella sherboni 128
 Howellas 128
HOWELLIDAE 17, 128
hoylei pfefferi, Abraliopsis 52
 Hudson's lanternfish 145
hudsoni, Diaphus 145
 Humpback toadfish 153
 Humpback whale 206, 208
 Hundshai 80
huttoni, Schedophilus 189
Hydrolagus africanus 101
Hydrolagus sp. 101
Hymenocephalus italicus 150
Hymenopenaeus chacei 27
Hyperoglyphe matthewsi 188
Hyperoglyphe moselii 188
- I**
- Ichthyococcus* 114
IDIACANTHIDAE 15, 115
Ijimaia loppei 157
Illex coindetii 64
imberbis, Gadella 148
imbricata, Eretmochelys 197
 Imperial scaldfish 192
imperialis, Arnoglossus 192
imperialis, Luvarus 136

<i>imus, Ectreposebastes</i>	162
<i>Inachus angolensis</i>	41
<i>Inachus grallator</i>	41
<i>Indopazifischer Segelfisch</i>	187
<i>inermis, Pseudodromia</i>	41
<i>infernalis, Vampyroteuthis</i>	57
<i>infirma, Psatyrocaris</i>	28
<i>inodorus, Argyrosomus</i>	176
inshore squids	52
<i>intronigra, Dicrolene</i>	152
ISTIOPHORIDAE	19, 137, 187 - 188
<i>Istiophorus platypterus</i>	187
<i>Isurus oxyrinchus</i>	78
<i>italicus, Hymenocephalus</i>	150
Izak	79
Izak catshark	79

J

Jackass penguin	199 - 200
Jacks	130
Jacopever	157, 162, 163, 172
Jacopower	162
<i>jacqueti bellmarleyi, Metacrangon</i>	29
Jandorie	159
<i>japonicus, Engraulis</i>	143
<i>japonicus, Scomber</i>	185
Japuta	170
Jaquetón blanco	77
<i>Jasus lalandii</i>	37
Javelin skate	95
JAWLESS FISHES	12, 69
Jewell Squids	54
Jibia arrogada	61
Jibia bala	60
John dory	159
<i>johnsoni, Melanocetus</i>	120
Jorobado africano	168
Josef	101
Joye luria invertida	63
<i>jubelini, Pomadasys</i>	171
Juibe menta	46
Jurel cunene	169
Jurel del Cabo	169

K

Kaapse ansjovis	143
Kaapse botvis	191
Kaapse chimaera	101
Kaapse dorie	159
Kaapse knorhaan	163
Kaapse skerpioenvis	163
Kaapse spierinkie	154
Kaapse-tongvis	194
Kabeljou	176
Kali	134
Kangaroo shrimp	33
Kap-Bastardmakrele	169
Kap-Hecht	147
Kap-Knurrhahn	163
Kap-Languste	37
<i>karrerae, Caelorinchus</i>	149
<i>Katsuwonus pelamis</i>	185
Katzen-Kreuzwels	144

<i>kaupi, Synaphobranchus</i>	111
Keep-harder	179
Keil-tongvis	193
Kelp	25
Kelp gull	199
Keulenrochen	94
Killer whale	210
King Crabs	40
Kingklip	2, 145, 152
<i>kingsleyi, Mierstograpsus</i>	43
Kleiner knorhaan	164
Kleiner sandkruiper	92
Kleinoog-stompstert	191
Knopstertroofmeeu (Af)	205
Kobia	167
Koester	165
Kolstert	173
Kombu de Benguela	25
Königsbarsch	167
Königslanguste	37
Koningklip	152
Koperhaai	81
Kortvin-mako	78
Kragenhai	77
Krausenhai	77
Kreef	37
Kupferhai	81
Kuronezumia leonis	150

L

<i>lacazei, Pontocaris</i>	34
<i>Lactoria diaphana</i>	140
Ladder dragonet	180
<i>Laemonema laureysi</i>	148
<i>laevigatus, Lagocephalus</i>	195
<i>laevis, Malacocephalus</i>	151
Lagarto ñato	145
<i>Lagenorhynchus obscurus</i>	210
<i>Lagocephalus laevigatus</i>	195
<i>Lagocephalus lagocephalus</i>	195
<i>lagocephalus, Lagocephalus</i>	195
Laitue	25
<i>lalandi, Seriola</i>	168
<i>lalandii, Jasus</i>	37
Laminaire du Benguela	25
<i>Laminaria</i>	25
<i>Laminaria schinzii</i>	24 - 25
LAMINARIACEAE	25
LAMNIDAE	12, 72, 77 - 78
LAMNIFORMES	72
<i>Lampanyctodes hectoris</i>	146
<i>Lampanyctus australis</i>	146
<i>Lampogammus exutus</i>	152
Lamprey	69
LAMPRIDAE	16, 123, 156
LAMPRIFORMES	123
<i>Lampris guttatus</i>	123, 156
Lancetfishes	116
Langbek-speervis	188
Langflossenthun	186
Langneus-penhaai	87
Langosta del Cabo	37
Langosta dentada	38
Langosta real	37

Langouste dentelé	38	Lesser striped shrimp	34
Langouste du Cap	37	<i>leucoptera, Stoloteuthis</i>	51
Langouste royale	37	LEUCOSIDAE	10, 41
Langoustine écarlate	38	Liche	168
Langschnauziger Speerfisch	188	<i>Lichia amia</i>	168
Langsnoet-blaasbalkvis	161	Lier-knorhaan	164
Langue de Zanzibar	195	Lightfishes	114
Langue verruqueuse	23	Lightfoot crab	46
Langvin-beenvvis	141	Lightfoot crabs	43
<i>lanarius, Pterogymnus</i>	175	<i>liguricus, Euchiropsus</i>	43
Lanternbellies	128	Linternillas de Bogue	146
Lanternfishes	3, 117	Linternillas de Hector	146
Lanternules de Bogue	146	Linternillas de Hudson	145
Lanternules de Hector	146	Linternillas de Mead	146
Lanternules de Hudson	145	Linternillas del Sur	146
Lanternules de Mead	146	<i>Liocranchia reinhardtii</i>	56
Lanternules du Sud	146	LIPARIDIDAE	17, 128
Large-eye dentex	3, 157, 162, 172	<i>Lissodelphis peronii</i>	211
Largehead hairtail	184	Listado	185
Large-toothed conger	142	Listao	185
LARIDAE	21, 205	<i>Lithodes ferox</i>	44
<i>Larus cirrocephalus</i>	199	LITHODIDAE	9, 40, 44
<i>Larus dominicanus</i>	199	<i>Lithognathus aureti</i>	173
<i>Larus hartlaubii</i>	199	<i>Lithognathus lithognathus</i>	173
<i>Larus sabini</i>	205	<i>Lithognathus mormyrus</i>	174
<i>laticeps, Chrysoblephus</i>	172	<i>lithognathus, Lithognathus</i>	173
<i>latiscutatus, Arius</i>	112, 144	Liza acanalada	179
<i>laureysi, Laemonema</i>	148	<i>Liza dumerili</i>	179
<i>Leachia atlantica</i>	56	<i>Liza richardsonii</i>	179
<i>Leachia pacifica</i>	56	Liza sudafricana	179
Leafscale gulper shark	83	Lizardfishes	116
Leatherback turtle	198	Lobo marino de dos pelos de Sudafrica	212
<i>leda, Pontinus</i>	162	<i>Lobotes surinamensis</i>	131
Leer-drakie	180	LOBOTIDAE	18, 131
Leerfish	168	LOBSTER	9, 35
Leervis	168	Loggerhead turtle	197
Lefteye flounders	139	LOLIGINIDAE	10, 52, 61 - 62
Left-handed hermit crabs	40	<i>Loligo vulgaris</i>	3, 61
Legless cuskeel	152	<i>Loligo vulgaris reynaudi</i>	61
Leierhahn	164	<i>Lolliguncula mercatoris</i>	62
Leierknurrhahn	164	Long neck eels	111
Lengua de lagarto	152	Longbill spearfish	188
Lengua de perro	194	Longfin bonefish	3, 141
Lengua de Zanzibar	195	Longfinned pilot whale	209
Lengua verrucosa	23	Longhand Squids	56
Lenguado amarillo	194	<i>longipinnis, Taractichthys</i>	171
Lenguado de aleta	193	<i>longirostris, Glyphocrangon</i>	29
Lenguado del Cabo	194	<i>longirostris, Munidopsis</i>	40
Lenguado del sur	193	<i>longirostris, Parapenaeus</i>	32
Lenguado paté	192	<i>longispinis, Calostacus</i>	36
Lenguado pelicano	192	Longnose chimaeras	100
<i>leonina, Mirounga</i>	211 - 212	Longnose spiny dogfish	87
<i>leonis, Kuronezumia</i>	150	Longnose spurdog	87
Leopard skate	95	Longnose velvet dogfish	84
<i>leopardus, Raja</i>	95	Longsnout bellowsfish	161
<i>Lepidochelys olivacea</i>	198	Longsnout dogfish	85
<i>Lepidocybium flavobrunneum</i>	181	Longspine bellowfish	161
<i>Lepidopus caudatus</i>	2, 184	Longspine snipefish	161
Leptocephalus larvae	141	Lookdown fish	168
Leptoderma	113	Loosejaws	115
<i>lepturus, Trichiurus</i>	184	LOPHIIDAE	15, 119, 154
Lesser flying squid	66	LOPHIIFORMES	119, 128
Lesser guitarfish	92	<i>Lophius budegassa</i>	154
Lesser gurnard	164	<i>Lophius upsicephalus</i>	3, 154

<i>Lophius vaillanti</i>	154	Mako	78
<i>Lophius vomerinus</i>	154	Makrelenhai	78
Loppe's tadpole fish	157	Makrelenhecht	155
<i>loppei, Ijimaia</i>	157	Makriel	185
Loutène retournée	63	<i>Malacocephalus laevis</i>	151
Louvar	136	<i>Malacocephalus occidentalis</i>	151
<i>Lucifer faxoni</i>	27	MALACOSTEIDAE	15, 115
<i>lucifer, Etmopterus</i>	85	Malbaatjie	202
Luciferid shrimps	27	Malcarado de Parin	157
LUCIFERIDAE	8, 27	Malgas	203
<i>lugubris, Chascanopsetta</i>	192	Manchot du cap	200
Luria ganchuda	63	Manefishes	131
Lurión rugoso	62	Mantilla	25
<i>luteus, Monochirus</i>	194	Maquereau espagnol	185
LUVARIDAE	19, 136	Marbré	174
Luvarus imperialis	136	Marbré de la côte ouest	173
Lycu squids	52	Marbré du Cap	173
<i>Lycodes atlanticus</i>	134	<i>marginata, Caperea</i>	207
LYCOTEUTHIDAE	10, 52	<i>marginatus, Epinephelus</i>	165
<i>Lycoteuthis diadema</i>	52	Marine hatchetfishes	114
<i>lyra, Trigla</i>	164	MARINE MAMMALS	206
Lyre gurnard	164	<i>maritae, Chaceon</i>	5, 45
M		marlins	137
Maasbanker	169	<i>marmorata, Dasyatis</i>	98
Macabí badejo	141	Marmorbrasse	173 - 174
Macarela chuparaco	167	Marrajo dientuso	78
Mâchoiron de Gambie	144	marsh crabs	43
Machuelo	143	<i>marsupialis, Glyphus</i>	33
Mackerel	185	<i>martia, Plesionika</i>	34
Mackerel sharks	72	Masca du Cap	101
Mackerels	137	MASTIGOTEUTHIDAE	11, 56
Maconde lèvres mince	164	<i>Mastigoteuthis grimaldii</i>	56
<i>macrocerus, Sympagrus</i>	40	<i>matamua, Caelorinchus</i>	150
<i>macrocheles, Alpheus</i>	29	matchbox crabs	43
<i>macrocheles, Macropodia</i>	41	<i>matthewsi, Hyperoglyphe</i>	188
<i>macrohista, Histiotethus</i>	54	<i>Maulisia microlepis</i>	113
<i>Macrolepidotus, Neoscopelus</i>	117	<i>Mauroliscus</i>	114
<i>Macroparalepis</i>	116	<i>maxima, Ecklonia</i>	24 - 25
<i>Macrolepidotus, Neoscopelus</i>	117	<i>maximus, Cetorhinus</i>	73
<i>Macropetasma africana</i>	31	Mead's lanternfish	146
<i>macrophthalmus, Dentex</i>	3, 157, 162, 172	<i>meadi, Diaphus</i>	146
<i>Macropipus australis</i>	43	Mediterranean slimehead	158
<i>Macropodia macrocheles</i>	41	<i>mediterraneus, Hoplostethus</i>	158
MACRORAMPHOSIDAE	17, 126, 161	Medregal rabo amarillo	168
<i>Macroramphosus scolopax</i>	161	Meersau	88
<i>macrosolen, Notopogon</i>	161	Megalocranchia oceanica	56
MACROURIDAE	15, 118, 149	<i>megalops, Bajacalifornia</i>	113, 144
<i>maculata, Teuthowenia</i>	56	<i>megalops, Squalus</i>	87
<i>maculatus, Pseudocyttus</i>	160	<i>megalopterus, Triakis</i>	81
Madeiran sardine	143	<i>Megaptera novaeangliae</i>	208
Madeiran sardinelle	143	<i>Melamphaes</i>	124
Madeira-sardinelle	143	MELAMPHAIDAE	17, 124
Madeira-Sardinelle	143	<i>melanobranchus, Bathygadus</i>	149
<i>maderensis, Sardinella</i>	143	MELANOCETIDAE	16, 120
Maïou	167	<i>Melanocetus johnsoni</i>	120
Magnificent octopus	67	<i>melanophris, Diomedea</i>	200
<i>magnificus, Octopus</i>	58, 67	<i>melanopus, Hoplostethus</i>	3, 159
<i>Maja squinado</i>	45	MELANOSTOMIIDAE	15, 115
MAJIDAE	10, 41, 45	<i>melanum, Ariomma</i>	138
<i>Makaira nigricans</i>	187	<i>melanurus, Chatrabus</i>	153
Makaïre bécune	188	<i>melas, Globicephala</i>	209
Makaïre blanc	187	<i>meleagroteuthis, Histiotethus</i>	54
Makaïre bleu	187	Menschenhai	77
		<i>mercatoris, Lolliguncula</i>	62

<i>Merhippolyte agulhasensis</i>	29	<i>Morus capensis</i>	199, 203
<i>Merhippolyte ancistrotia</i>	29	<i>moselii, Hyperoglyphe</i>	188
<i>meridionalis, Choromytilus</i>	47	Mousse	23
Merlu d'Afrique tropical	7	Mud crabs	43
Merlu d'Afrique tropicale	147	Mud sole	193
Merlu du Cap	147	<i>Mugil cephalus</i>	179
Merlu profond	7, 147	MUGILIDAE	19, 133, 179
MERLUCCIIDAE	7, 15, 118, 147	Mulet bouri	179
<i>Merluccius capensis</i>	2, 5, 7, 147	Mulet cabot	179
<i>Merluccius paradoxus</i>	2 - 3, 5, 7, 147	Mulet sudafricain	179
<i>Merluccius polli</i>	7, 118	Mulletts	133
Merluza de Benguela	7, 147	<i>multistriatus, Diplospinus</i>	180
Merluza de cantil	7, 147	Munchkin skate	94
Merluza del Cabo	147	<i>Munida benguela</i>	40
Mero moreno	165	<i>Munida speciosa</i>	40
Mérou noir	165	<i>Munidopsis chuni</i>	40
<i>Metacrangon jacqueti bellmarleyi</i>	29	<i>Munidopsis longirostris</i>	40
<i>microlepis, Austroglossus</i>	193	<i>Mursia cristimanus</i>	42
<i>microlepis, Maulisia</i>	113	Musgo carnosus	23
<i>microlepis, Synagrops</i>	3, 128, 164	Musola	80
<i>micronychodon, Nezumia</i>	151	Musola paloma	80
<i>microphthalmus, Aphanopus</i>	183	Musso africain	168
Microsomatid smelts	113	<i>Mustelus mustelus</i>	80
<i>microstoma, Monolene</i>	192	<i>Mustelus palumbeus</i>	80
MICROSTOMATIDAE	14, 113	<i>mustelus, Mustelus</i>	80
<i>micrurum, Syacium</i>	192	MYCTOPHIDAE	3, 15, 117, 146
Midwater scorpionfish	162	MYCTOPHIFORMES	117
Mielga	86	<i>Myctophum</i>	117
<i>Mierstograpsus kingsleyi</i>	43	<i>mydas, Chelonia</i>	197
Migraine épineuse	45	MYLIOBATIDAE	13, 91, 99
Mikhailin's scabbardfish	183	MYLIOBATIFORMES	91
<i>mikhailini, Aphanopus</i>	183	<i>Myliobatis aquila</i>	99
Mikstertmeeu	205	<i>myops, Trachinocephalus</i>	116, 145
Milandre jaune	81	MYSTICETI	21, 206 - 207
Mild meagre	176	<i>Mystriophis rostellatus</i>	141
<i>milleri, Nezumia</i>	151	MYTILIDAE	10, 47
Minke whale	208	Myxine à six trous	69
minor, Rondeletiola	51	Myxine capensis	69
<i>miraletus, Raja</i>	96	Myxine du Cap	69
<i>Mirounga leonina</i>	211 - 212	MYXINIDAE	12, 69
<i>mitsukurii, Squalus</i>	87	MYXINIFORMES	69
Mittelmeer-Glatthai	80	N	
Mittelmeer-Kaiserbarsch	158	Nagelhai	88
Mittelmeer-Schlangenaai	141	Nagelrochen	94
<i>modesta, Pandalina</i>	29	<i>namibiensis, Processa</i>	29
<i>Mola mola</i>	140	<i>Nanichthys simulans</i>	155
<i>mola, Mola</i>	140	<i>Nansenia</i>	113
Molas	140	Narigón aletas de haz	102
MOLIDAE	20, 140	Narigón sierra	102
Monk	154	<i>Narke capensis</i>	92
Monkfishes	119	NARKIDAE	13, 90, 92
Monnik	154	Narrownose chimaera	102
<i>Monochirus luteus</i>	194	<i>nasutus Nesiarchus</i>	181
<i>Monodaeus cristulatus</i>	43	<i>natalensis, Gymnura</i>	99
Monolena bocachica	192	<i>Nautilocorystes ocellatus</i>	42
Monolène à petite bouche	192	<i>Nealotus tripes</i>	181
<i>Monolene microstoma</i>	192	<i>neglectus, Phalacrocorax</i>	199, 204
Moonfish	130	NEMATOCARCINIDAE	8, 28, 32
Moras	118	<i>Nematocarcinus africanus</i>	32
MORIDAE	15, 118, 148	<i>Nematocarcinus sigmoideus</i>	28
<i>mormyrus, Lithognathus</i>	174	NEMICHTHYIDAE	14, 112
MORONIDAE	128	<i>Nemichthys scolopaceus</i>	112
<i>Moroteuthis</i>	53	NEOBALAENIDAE	207
<i>Moroteuthis robsoni</i>	62		

<i>Neocyttus rhomboidalis</i>	160
<i>Neoharriotta pinnata</i>	102
<i>Neolithodes asperrimus</i>	44
<i>Neomerinthe folgori</i>	162
Neon flying squid	65
<i>Neopilumnoplax heterochir</i>	42
<i>Neorissa caroli</i>	51
NEOSCOPELIDAE	15, 117
<i>Neoscopelus macrolepidotus</i>	117
NEPHROPIDAE	9, 36, 38
<i>Nephropsis atlantica</i>	38
<i>Nesiarchus nasutus</i>	181
NETTASTOMATIDAE	14, 111
<i>Nezumia</i>	3
<i>Nezumia micronychodon</i>	151
<i>Nezumia milleri</i>	151
<i>niger, Centrolophus</i>	188
Night shark	82
Night shrimps	29
<i>nigricans, Makaira</i>	187
<i>nitidus nitidus, Emmelichthys</i>	2, 171
<i>nitidus, Emmelichthys nitidus</i>	2, 171
<i>nobiliana, Torpedo</i>	92
<i>nodosa Argonauta</i>	58
NOMEIDAE	19, 138, 190
Nori del Cabo	24
Nori du Cap	24
Norman's tonguesole	195
<i>normani, Symphurus</i>	195
NOTACANTHIDAE	13, 110, 141
NOTACANTHIFORMES	110
<i>Notacanthus sexspinis</i>	110, 141
<i>Notopogon macrosolen</i>	161
<i>Notorynchus cepedianus</i>	76
<i>Notorynchus pectorosus</i>	76
NOTOSUDIDAE	15, 116
<i>novaeangliae, Megaptera</i>	208
Numbfish	90

O

Oarfishes	123
<i>obesus, Thunnus</i>	186
<i>obscurus, Lagenorhynchus</i>	209
<i>occidentalis, Malacocephalus</i>	151
Ocean sunfishes	140
Oceanic blaasop	195
Oceanic squids	52
<i>oceanica, Megalocranchia</i>	56
<i>oceanicus, Oceanites</i>	202
<i>Oceanites oceanicus</i>	202
<i>ocellatus, Nautilocorystes</i>	42
<i>ocellatus, Sardinops</i>	3, 143, 200
OCTOPODA	57
OCTOPODIDAE	11, 58
OCTOPOTEUTHIDAE	11, 53
<i>Octopoteuthis sicula</i>	53
<i>Octopus magnificus</i>	58, 67
Octopus Squids	53
<i>Octopus vulgaris</i>	58, 68
Octopuses	57 - 58
<i>oculata, Squatina</i>	88
OCYPODIDAE	9 - 10, 43
<i>Ocythoe tuberculata</i>	58
OCYTHOIDAE	11, 58

Ocythoids	58
ODONTASPIDIDAE	12, 72, 77
ODONTOCETI	21, 206, 208
<i>officinalis, Sepia</i>	60
OGCOCEPHALIDAE	15, 120
Ohrensardine	142
Oilfish	182
Ojiverde	145
Ojiverde manchado	145
Ölfisch	182
Olievis	182
<i>olivacea, Lepidochelys</i>	198
olivaceum, Pomadasys	171
Olive grunt	171
Olive ridley turtle	198
Ombrine bronze	177
<i>Ommastrephes bartrami</i>	65
<i>Ommastrephes pteropus</i>	65
OMMASTREPHIDAE	11, 55, 64 - 66
Onefin electric ray	92
<i>onocrotalus, Pelecanus</i>	199, 203
ONYCHOTEUTHIDAE	11, 53, 62 - 63
<i>Onychoteuthis banski</i>	63
Ooskus-tongvis	193
Opa	156
Opahs	123, 156
Opesee-blaasop	195
OPHICHTHIDAE	14, 111, 141
OPHIDIIDAE	15, 119, 152 - 153
OPHIDIIFORMES	119
<i>Ophisurus serpens</i>	141
OPISTHOTEUTHIDAE	11, 57
<i>Opisthoteuthis agassizi</i>	57
OPLOPHORIDAE	8, 28, 32
Orange roughy	158
Orangeback flying squid	65
<i>orbignyana, Sepia</i>	51
<i>orbitosa, Aeodes</i>	24
Orca	209
<i>orca, Orcinus</i>	209
<i>Orcinus orca</i>	209
Oreos	126
OREOSOMATIDAE	17, 126, 160
<i>ornata, Sepiella</i>	51
Ornate arm squid	64
<i>Ornithoteuthis volatilis</i>	55
Orque	209
Ostküsten-Seezunge	193
OSTRACIIDAE	20, 140
Otarie du cap	212
OTARIIDAE	212
Oval driftfish	189
Ovale dryfvis	189
<i>ovenii, Halosaurus</i>	110
OXYNOTIDAE	12, 75, 88
<i>Oxynotus centrina</i>	75, 88
<i>Oxynotus shubnikovi</i>	88
<i>oxyrinchus, Isurus</i>	78

P

<i>Pachygrapsus transversus</i>	46
<i>Pachymetopon blochii</i>	174
<i>pacifica, Leachia</i>	56
Pagador	152

Pagre rayé	174	Pazifischer Facherfisch	187
Pagrus auriga	174	Pazifischer Segelfisch	187
Pailona	83	Pearleyes	117
Pailona à long nez	84	Peau bleue	82
Pailona comun	83	Peau jaune	24
Painted lizardfish	145	pectoralis, Austroglossus	193
Palaemon elegans	33	pectoralis, Paragaleus	74, 81
Palaemonid shrimps	28	pectorosus, Notorynchus	76
PALAEMONIDAE	8, 28, 33	pediformis, Sergestes	27
Paling	142	Pejegallos del Cabo	101
PALINURIDAE	9, 35, 37, 38	Pejagato reticulado	79
pallidus, Dicrolene	152	Pejerrey del Cabo	154
Palometa fiátola	191	Pelada de Norman	195
Palometa negra	170	Pelagic goby	180
Palometón	168	Pelagic stingray	98
palumbeus, Mustelus	80	Pelagiese dikkop	180
Pampelfisch	191	Pelagiese pylstert	98
Pandalid shrimps	29	Pelamide	185
PANDALIDAE	9, 29, 33 - 34	pelamis, Katsuwonus	185
Pandalina modesta	29	PELECANIDAE	21, 203
Pandalina profunda	29	Pelecanus onocrotalus	199, 203
pandionis, Epigonus	166	Pelecanus rufescens	203
Panga	175	Pelican	203
Panga seabream	175	Pelican blanc	203
Panga-Meerbrasse	175	Pelican flounder	192
Panulirus regius	37	peli, Pteroscion	177
Paparda del Atlantico	155	peli, Calappa	45
Paparda enana	155	Pelikaan-botvis	192
papillata, Sepia	51, 61	pellucidus, Psenes	190
Parablennius cornutus	135	Peluda del Cabo	191
Paracallionymus costatus	135, 180	Pemarco blackfish	189
Paradiplospinus gracilis	182	pemarco, Schedophilus	189
paradoxus, Merluccius	2, 5, 7, 147	Penaeid shrimps	27
Paragaleus pectoralis	74, 81	Penaeid Shrimps	27
PARALEPIDIDAE	15, 116	PENAEIDAE	8, 27, 31 - 32
Paralomis africana	40	PENAEIDEA	27
PARAPAGURIDAE	9, 40	Pensstreep-tuna	185
Parapagurus bouvieri	40	Peppermint swimcrab	46
Parapenaeus longirostris	32	Perch-like Fishes	128
parasiticus, Stercorarius	205	PERCICHTHYIDAE	128
parcomaculata, Cruriraja	93	PERCIFORMES	126, 128
Pardete	179	PERCOPHIDAE	19, 134
Pargo chopá	176	Peregrine ribbonfish	156
Pargo ñato	175	Periclimenes andresi	28
Pargo sémola	174	PERISTEIIDAE	17, 127
Parin's spiny fin	157	perlo, Heptranchias	76
parini, Diretmoides	157	Perlon	76
parkeri, Projasus	38	Perna mussel	47
Paromola	44	Perna perna	47
Paromola cuvieri	44	peronii, Lissodelphis	211
Paromole	44	Perpeire pélican	192
Pasiphaea semispinosa	28	Perulibatrachus elminensis	153
Pasiphaea tarda	28	Perulibatrachus rossignoli	153
PASIPHAEIDAE	8, 28, 33	Petersfisch	159
Pastenague violette	98	petimba, Fistularia	126
pastinaca, Dasyatis	91, 98	Petit rorqual	209
Pata de pulpo	157	Pez ángel	88
Patella argenvillei	48	Pez cinto	184
Patella compressa	24	Pez de San Pedro	159
Patella granitina	48	Pez espada	187
Patella granularis	48	Pez lima	191
PATELLIDAE	10, 48	Pez moco de seis agallas	69
Patudo	186	Pez moco del Cabo	69
pauciradiatus, Cubiceps	190		

Pez sable	184	POLYPRIONIDAE	18, 128, 164
Pez temblador del Cabo	92	<i>Pomadasys jubelini</i>	171
Pez vela	187	<i>Pomadasys olivaceum</i>	171
<i>pfefferi</i> , <i>Abraliopsis hoylei</i>	52	Pomarine skua	205
<i>pfefferi</i> , <i>Helicocranchia</i>	56	<i>pomarinus</i> , <i>Stercorarius</i>	205
Pfeifenfisch	164	POMATOMIDAE	18, 129, 167
<i>pfluegeri</i> , <i>Tetrapturus</i>	188	<i>Pomatomus saltatrix</i>	167
PHAEOPHYTA	8, 25	Pomfrets	130, 170
PHALACROCORACIDAE	21, 203 - 204	Pompano	191
<i>Phalacrocorax capensis</i>	199, 203	Pompano dolphinfish	169
<i>Phalacrocorax carbo</i>	199, 204	Pompano-dorade	169
<i>Phalacrocorax coronatus</i>	199, 204	<i>Pontinus leda</i>	162
<i>Phalacrocorax neglectus</i>	199, 204	<i>Pontocaris lacazei</i>	34
PHOCIDAE	212	<i>Pontophilus gracilis</i>	29
PHOSICHTHYIDAE	3, 14, 114	Porcupinefishes	140
PHOTICHTHYIDAE	114	Porgies	132
<i>Phosichthys argenteus</i>	114	<i>Porphyra capensis</i>	24
<i>Phrynichthys wedli</i>	121	Porpoises	206
<i>physalus</i> , <i>Balaenoptera</i>	207	Portuguese dogfish	83
<i>Physeter catodon</i>	208	PORTUNIDAE	10, 43, 46
PHYSETERIDAE	208	Pota angolense	66
<i>Physiculus capensis</i>	148	Pota costera	66
<i>picta</i> , <i>Brachioteuthis</i>	55, 64	Pota naranja	65
<i>pictus</i> , <i>Chaunax</i>	120	Pota saltadora	65
<i>pictus</i> , <i>Haploblepharus</i>	79	Pota voladora	64
Pieuvre	68	<i>potens</i> , <i>Sergia</i>	27
Piggy	171	PRAWNS	8
Pikkewyn	200	<i>pretiosus</i> , <i>Ruvettus</i>	182
pilchards	112	<i>Prionace glauca</i>	82
Pinkbacked pelican	203	<i>proboscidea</i> , <i>Venefica</i>	111
<i>pinnata</i> , <i>Neoharriotta</i>	102	<i>proboscidea</i> , <i>Heteromycteris</i>	194
PINNIPEDIA	21, 211	<i>Procellaria aequinoctialis</i>	202
Pintadilla bicolor	178	PROCELLARIIDAE	20, 202 - 203
Pintadilla de bancs	178	<i>Processa namibiensis</i>	29
Pintadilla leopardo	178	PROCESSIDAE	9, 29
Pintado petrel	201	Prodigal son	167
Pintarroja africana	78	<i>profunda</i> , <i>Pandalina</i>	29
Pipefishes	126	<i>profundorum</i> , <i>Deania</i>	84
Piper gurnard	164	<i>Projasus parkeri</i>	38
<i>piperitus</i> , <i>Bathynectes</i>	43, 46	<i>prometheus</i> , <i>Promethichthys</i>	182
Plagusie de Norman	195	<i>Promethichthys prometheus</i>	182
Platkop-harder	179	<i>Psatyrocaris infirma</i>	28
Platneus-sewekiefhaai	76	<i>Psenes arafurensis</i>	190
Platnez	76	<i>Psenes pellucidus</i>	190
<i>platypterus</i> , <i>Istiophorus</i>	187	<i>Pseudocyttus maculatus</i>	160
PLATYROCTIDAE	14, 113	<i>pseudodorsalis</i> , <i>Pleuroscopus</i>	134
<i>Plesionika acanthonotus</i>	34	<i>Pseudodromia inermis</i>	41
<i>Plesionika carinata</i>	29	PSYCHROLUTIDAE	17, 127
<i>Plesionika heterocarpus</i>	29	<i>Pterogymnus lanarius</i>	175
<i>Plesionika martia</i>	34	<i>Pteromylaeus bovinus</i>	99
PLEURONECTIFORMES	139	<i>Pteroplatytrygon violacea</i>	98
<i>Pleuroscopus pseudodorsalis</i>	134	<i>pteropus</i> , <i>Ommastrephes</i>	65
<i>Poisson engourdeur du Cap</i>	92	<i>Pteroscion peli</i>	177
<i>Poisson guitare épointé</i>	93	PTEROTHRISIDAE	110
<i>Poisson sabre commun</i>	184	<i>Pterothrissus belloci</i>	3, 110, 141
<i>Poisson sabre jarretiére</i>	183	<i>Pterygioteuthis gemmata</i>	52
<i>Poisson sabre petits yeux</i>	183	Pudgy cuskeel	153
<i>Poisson-guitare du Cap</i>	92	Puffers	140
<i>polli</i> , <i>Caelorinchus caelorinchus</i>	149	<i>Puffinus griseus</i>	202
<i>polli</i> , <i>Galeus</i>	3, 78	<i>pullopunctata</i> , <i>Raja</i>	96
<i>polli</i> , <i>Merluccius</i>	7, 118, 147	Pulpo común	68
POLYCHELIDAE	9, 36	<i>puncatatus</i> , <i>Decapterus</i>	167
<i>polynema</i> , <i>Caulophryne</i>	121	<i>Punctatus</i> , <i>Chlorophthalmus</i>	145
<i>Polyprion americanus</i>	128, 164	Purse crabs	41

pusillus pusillus, *Arctocephalus* 211 - 212
pusillus, *Arctocephalus pusillus* 211 - 212
pusillus, *Etmopterus* 86
 Pygmy right whale 207

Q

quadriscoposum, *Deania* 85
queketti, *Chelidonichthys* 164
 Quelvacho 82
 Quelvacho negro 83
 Quimera castaña 101
 Quimera de Raleigh 102
 Quimera del Cabo 101

R

Rabbit puffer 195
 Rabil 186
RACHYCENTRIDAE 18, 129, 167
Rachycentron canadum 167
radula, *Gigartina* 23
 Rag ruff 189
 Ragged-tooth sharks 72
 Raia á nez hérissé 93
 Raia-papillon de Natal 99
 Raie á queue épineuse 94
 Raie baveuse 96
 Raie blanche 94
 Raie bouclée 94
 Raie de Smith 93
 Raie de Springer 97
 Raie de Wallace 98
 Raie grand épine 95
 Raie léopard 95
 Raie lisse 96
 Raie miroir 96
 Raie peau hérissée 97
 Raie tachetée 97
 Raie violette 95
Raja alba 94
Raja barnardi 95
Raja caudaspinosa 94
Raja clavata 94, 97
Raja confundens 95
Raja doutrei 95
Raja leopardus 95
Raja miraletus 96
Raja pullopunctata 96
Raja ravidula 96
Raja spinacidermis 97
Raja springeri 97
Raja straeleni 94, 97
Raja wallacei 98
RAJIDAE 13, 91, 93 - 98
 RAJIFORMES 90
raleighana, *Harriotta* 102
 Ram's Horn Squids 51
 Rape africano 154
 Rape del Cabo 154
 Rascacio de Folgor 162
 Rascacio del Cabo 163
 Rascacio profundo 162
 Rascacio rosado 162
 Rascacio serrano 163

Rascasse de Folgor 162
 Rascasse du Cap 163
 Rascasse profonde 162
 Rascasse rose 163
 Rascasse serran 163
 Rascasse tachetée 162
 Rattails 118, 149
 Rauher Dornhai 82
ravidula, *Raja* 96
 Raya bramante 94
 Raya cola espinosa 94
 Raya de clavos 94
 Raya de espejos 96
 Raya de grande espina 95
 Raya de Smith 93
 Raya de Springer 97
 Raya de Wallace 98
 Raya látigo violeta 98
 Raya leopardo 95
 Raya limosa 96
 Raya manchada 97
 Raya mariposa de Natal 99
 Raya nariz áspera 93
 Raya piel áspera 97
 Raya suave 96
 Raya violeta 95
 RAYS 89
 Red Algae 23
 Red ribbons 24
 Red slipper lobster 38
 Redbanded seabream 174
 Redeye roundherring 142
 Redfingers 178
 Redspotted tonguefish 195
REGALECIDAE 16, 123
Regalecus glesne 123
regani, *Holohalaelurus* 79
regius, *Panulirus* 37
reinhardti, *Liocranchia* 56
 Reloj anaranjado 158
 Reloj de Darwin 158
 Reloj escama pequeña 159
 Reloj mediterráneo 158
 Reloj negro 158
Remora brachyptera 129
 Remoras 129
 Rem-vinderrog 99
 Renard 78
 Requiem sharks 74
 Requin cuivre 81
 Requin de nuit 82
 Requin gris 76
 Requin lezard 77
 Requin perlon 76
 Requin taureau 77
 Requin-hâ 80
 Reuse geelstert 168
reversa, *Histioteuthis* 54, 63
 Reverse jewel squid 63
reynaudi, *Loligo* 3, 61
reynaudi, *Loligo vulgaris* 61
Rhabdosargus globiceps 175
RHINOBATIDAE 13, 90, 92 - 93
Rhinobatos annulatus 92

<i>Rhinobatos blochii</i>	93	Royal spiny lobster	37
<i>Rhinochimaera atlantica</i>	102	Rubans rouges	24
RHINOCHIMAERIDAE	13, 100, 102	<i>rubescens</i> , <i>Taractes</i>	170
RHODOPHYTA	8, 23	Rubio del Cabo	163
Rhomboid squids	55	Rubio menor	164
<i>rhomboidalis</i> , <i>Neocyttus</i>	160	<i>rufa</i> , <i>Barbourisia</i>	125
<i>rhomboides</i> , <i>Goneplax</i>	42	<i>rufescens</i> , <i>Pelecanus</i>	203
<i>rhombus</i> , <i>Thysanoteuthis</i>	67	Ruffs	138
Ribbonfishes	123	Rufino pelado	189
<i>richardi</i> , <i>Stylopandalus</i>	29	Rufo africano	188
<i>richardi</i> , <i>Vitreledonella</i>	57	Rufo pemarco	189
<i>richardsonii</i> , <i>Liza</i>	179	Rugose hooked squid	62
Riesen-Zachenbarsch	165	<i>Ruvettus pretiosus</i>	182
Rizinusöl-Fisch	182	Ruwevel-rog	97
Rob	213		
<i>robsoni</i> , <i>Moroteuthis</i>	62	S	
<i>robusta</i> , <i>Sergia</i>	27	Sabertooth fishes	117
<i>robustus</i> , <i>Epigonus</i>	166	Sabine's gull	205
<i>Rochinia hertwigi</i>	41	<i>sabini</i> , <i>Larus</i>	205
Rockpool prawn	33	Sable de Mikhailin	183
Rog	94, 96	Sable ojito	183
Roman	172	Sabre argenté	184
Roman seabream	172	Sabre fleuret	183
Romerillo	188	<i>sagittatus angolensis</i> , <i>Todarodes</i>	49
Ronco sompat	171	<i>sagittatus</i> , <i>Todarodes</i>	3
Ronde skad	167	Sagre nain	86
<i>rondeletii</i> , <i>Hirundichthys</i>	155	Sagre porte-fey à queue courte	85
Rondeletiola minor	51	Sagre rubane	85
Rondswerwer-lintvis	156	Sailfish	137
Rooigespikkelde tongvis	195	Sailfish	187
Rooi-oog-rondeharing	142	Saint Pierre	159
Rooivingers	178	Saint Pierre argenté	159
Rorcual común	207	Saint Pierre du Cap	159
Rorcual enana	208	Salema	175
Rorcual jorobada	208	SALMONIFORMES	113
Rorqual commun	207	<i>salpa</i> , <i>Sarpa</i>	175
Rosa GeiBelgarnele	32	<i>saltatrix</i> , <i>Pomatomus</i>	167
Rosada	152	San Pedro del Cabo	159
<i>Rossia (Austrorossia) enigmatica</i>	51	San Pedro plateado	159
Rossignol toadfish	153	<i>sanctipauli</i> , <i>Architeuthis (dux)</i>	53
<i>rossignoli</i> , <i>Perulibatrachus</i>	153	Sand snake-eel	141
<i>rostrata</i> , <i>Antimora</i>	148	Sand steenbras	174
<i>rostellatus</i> , <i>Myxtriophis</i>	141	Sand tonguefish	194
Rote Languste	37	Sandlances	135
Roter Fahnenbarsch	165	Sandslangetjie	141
Rötgebänderte Meerbrasse	174	Sandsteenbras	174
Rötling	165	Sandtiger shark	77
Roudi escolar	182	Sand-tongvis	194
Rouffe africain	188	Sanmartin	159
Rouffe chiffon	189	Sapata negra	84
Rouffe rayé	189	Sapater	167
Rough king crab	44	Sapo chasquilla	153
Rough sharks	75	Sapo de Rossignol	153
Roughbelly skate	97	Sapo guineano	153
Roughhead seacatfish	144	Sar austral	175
Roughnose legskate	93	Sar commun du Cap	173
Roughskin skate	97	<i>Sarda sarda</i>	185
Roughsnout grenadier	3	<i>sarda</i> , <i>Sarda</i>	185
Round sardinella	142	Sardina angoleña	142
Round scad	167	Sardina sudafricana	143
Roussette à taches jaunes	79	Sardine de Whitehead	142
Roussette sombre	79	<i>Sardinella aurita</i>	142
Rouvet	182	<i>Sardinella maderensis</i>	143
Rovers	131	Sardinelle	142

Sardines	112	Sea grass	23
Sardinops	143	Sea lettuce	25
<i>Sardinops agax</i>	143	Sea toads	120
Sardinops d'Afrique du Sud	143	SEA TURTLES	196
<i>Sardinops ocellatus</i>	3, 143, 200	Seabasses	129
Sardyn	143	SEABIRDS	20, 199
Sargo del Cabo	173	Seabreams	132
Sargo hotentote	174	Seadevils	121
Sargo montura blanca	172	Seals	211, 212
Sargo panga	175	Searobins	127
<i>sargus capensis, Diplodus</i>	173	Seaspider	45
<i>Sarpa salpa</i>	175	SEAWEEDES	8
Saupe	175	Sébaste chèvre	162
Saurie	155	<i>sebastoides, Acanthistius</i>	165
Sauries	122	Sechskiemer	76
<i>saurus scomberoides, Scomberesox</i>	155	Seedulfstormvoel	201
Saury	155	Seiche australe	59
Sawback angelshark	88	Seiche balle	60
Sawtailfishes	115	Seiche élégante	59
<i>scabra, Cranchia</i>	56	Seiche ridée	61
<i>scabrus, Trachyrinchus</i>	3, 151	Seilvis	187
Scads	130	<i>Selachophidium guentheri</i>	152
Scaleless black dragonfishes	115	<i>Selene dorsalis</i>	168
Scalloped ribbonfish	156	<i>semispinosa, Pasiphaea</i>	28
Scaly dragonfishes	115	Sepia austral	59
<i>scandens, Ebalia</i>	41	<i>Sepia australis</i>	3, 59
Scarlet lobsterette	38	<i>Sepia elegans</i>	59
Scarlet shrimp	31	<i>Sepia hieronis</i>	60
<i>Schedophilus huttoni</i>	189	<i>Sepia officinalis</i>	60
<i>Schedophilus pamarco</i>	189	<i>Sepia orbignyana</i>	51
<i>schinzii, Laminaria</i>	24 - 25	<i>Sepia papillata</i>	51, 61
Schlankthun	184	<i>Sepia vermiculata</i>	60
Schnepfenfisch	161	<i>Sepiella ornata</i>	51
Schwanzfleck-Stachelmakrele	167	SEPIIDAE	10, 51, 59 - 61
Schwarzer Zitterrochen	92	SEPIOIDEA	51
Schwarzfisch	188	SEPIOLIDAE	10, 51
Schweinhai	88	<i>Sergestes arcticus</i>	27
Schwertfisch	187	<i>Sergestes armatus</i>	27
SCIAENIDAE	18, 132, 176 - 177	<i>Sergestes diapontius</i>	27
<i>scelopaceus, Nemichthys</i>	112	<i>Sergestes edwardsi</i>	27
<i>scolopax, Macroramphosus</i>	161	<i>Sergestes pediformis</i>	27
<i>Scomber japonicus</i>	185	Sergestid shrimps	27
SCOMBERESOCIDAE	16, 122, 155	SERGESTIDAE	8, 27
<i>Scomberesox saurus scomberoides</i>	155	<i>Sergia grandis</i>	27
<i>scomberoides, Scomberesox saurus</i>	155	<i>Sergia potens</i>	27
SCOMBRIDAE	19, 137, 184 - 186	<i>Sergia robusta</i>	27
SCOMBROLABRACIDAE	19, 136	<i>Seriola lalandi</i>	168
<i>Scombrolabrax heterolepis</i>	136	Sériole chinchard	168
SCOPELARCHIDAE	15, 117	<i>serpens, Gempylus</i>	181
<i>Scopelarchus</i>	117	<i>serpens, Ophisurus</i>	141
<i>Scorpaena elongata</i>	163	Serpent eel	141
SCORPAENIDAE	17, 127, 162 - 163	Serpenton à nez long	141
SCORPAENIFORMES	127	Serpenton gris	141
Scorpionfishes	127	Serran chèvre	165
SCYLIORHINIDAE	12, 78 - 79	Serrandel imperial	192
<i>Scyliorhinus</i>	73	SERRANIDAE	18, 129, 164, 165
<i>Scyliorhinus capensis</i>	79	<i>Serranus cabrilla</i>	165
SCYLLARIDAE	9, 38	Seskiefhaai	76
<i>Scyllarides herklotsii</i>	38	Seskief-slymslang	69
<i>Scymnodon</i>	75	<i>setapinnis, Vomer</i>	168
<i>Scymnodon squamulosus</i>	86	<i>Setarches guentheri</i>	163
Sea bamboo	25	<i>sexspinis, Notacanthus</i>	110, 141
Sea catfishes	112	Shallow-water hake	147
sea dog	212	SHARKS	12, 70

Sharpnose sevengill shark	76	Snailfishes	128
Sharptooth houndshark	81	Snake eels	111
sherboni, Howella	128	Snake mackerel	181
Shlangenmakrele	182	Snake mackerels	136
Shore crabs	43	Snapping shrimps	29
Shortfin mako	78	Snipe eels	112
Shortnose chimaeras	100	Snipefishes	126
Shortnose greeneye	145	Snoek	2, 183
Shortnose spurdog	87	Sole australe occidentale	193
Shortspine African angler	154	Sole de vase	193
Shortspine spurdog	87	Sole du Cap	194
Shorttail lantern shark	85	Sole jaune	194
SHRIMPS AND PRAWNS	8, 26	SOLEIDAE	20, 139, 193 - 194
shubnikovi, Oxynotus	88	Sole-langue du Cap	194
Shy albatross	200	Solenocera africana	3, 27, 30
Sicklefin chimaera	102	Solenocère d'Afrique	30
sicula, Ctenopteryx	54	Solenocerid shrimps	27
sicula, Octopoteuthis	53	SOLENOCERIDAE	8, 27, 30
Sierra	183	Soles	139
sigmoideus, Nematocarcinus	28	Sompat grunt	171
signatus, Carcharhinus	82	Sompat-SuBlippe	171
SILURIFORMES	112	SOMNIOSIDAE	75, 83, 84, 86
Silver kob	176	Sonnenfisch	159
Silver scabbardfish	2, 184	Sopvinhaai	80
Silversides	122	Soufin shark	80
Silvery John dory	159	South African blue stingray	98
simorhynchus, Caelorinchus	150	South African fur seal	211, 212
simulans, Nanichthys	155	South African mullet	179
Sivade kangourou	33	Southern African anchovy	143
Sixgill hagfish	69	Southern African pilchard	143
Sixgill shark	76	Southern cuttlefish	59
Skates	89 - 91	Southern elephant seal	211, 212
Skerpneus-sewekiefhaai	76	Southern imperial blackfish	189
Skipjack tuna	185	Southern lanternfish	146
Skolier	181	Southern mullet	179
Skulprand-lintvis	156	Southern right whale	206, 207
Slangmakriel	181	Southern right whale dolphin	210
Slank beryx	157	Southern rover	2, 171
Slank snipvis	161	Spare à selle blanche	172
Slank tuna	184	Spare panga	175
Slant kalkvis	183	SPARIDAE	18, 132, 172 - 176
Slender beryx	157	Spearfishes	137
Slender escolar	182	Spearnose chimaera	102
Slender frostfish	183	Spearnose skate	94
Slender rockfish	163	speciosa, Munida	40
Slender snipefish	161	Speckled deepwater scorpionfish	162
Slender tuna	184	Spectrunculus grandis	153
Slickheads	113	Sperm whale	206, 208
Slime skate	96	SPHENISCIDAE	20, 200
Slimeheads	124	<i>Spheniscus demersus</i>	199 - 200
Slipper lobsters	35 - 36	SPHYRAENIDAE	19
Small mouth moonflounder	192	Sphyrna afra	179
Smalleye scabbardfish	183	SPHYRAENIDAE	133, 179
Smalleye squaretail	191	Sphyrna lewini	74
Smallscale slimehead	3, 159	SPHYRNIDAE	12, 74
smithii, Bathyraja	93	Spider crabs	41, 44, 45
Smooth horsefish	161	Spider shrimps	28
Smooth lanternshark	86	Spiesneus rog (Ak)	94
Smooth oreo	160	Spikey oreo	160
Smooth puffer	195	Spikkel-penhaai	86
Smoothback angelshark	88	spinacidermis, Raja	97
Smoothback skate	96	Spinenose horsefish	161
Smooth-hound	80	spinifer, Congiopodus	161
Snaggletooths	115	spinosa, Exodromidia	41

Spinous spider crab	45	Stöcker	169
Spiny box crab	45	Stokvis	7
Spiny eels	110	<i>Stoloteuthis leucoptera</i>	51
Spiny lobsters	35	<i>Stomias boa boa</i>	115
Spiny puffers	140	STOMIIDAE	14, 115
Spiny-back eel	141	STOMIIFORMES	114
Spinycrab	45	Stompneus-penhaai	87
Spinyfins	124	Stompneus-sandkruiper	93
Spinytailed deepsea pelagic shrimp	32	Stone crabs	40, 44
<i>Spirula spirula</i>	51	<i>straeleni, Raja</i>	94, 97
<i>spirula, Spirula</i>	51	Strepie	175
SPIRULIDAE	10, 51	<i>striatus, Antennarius</i>	120
Spitzkopfsiebenkiemer	76	Striped escolar	180
Spitzrochen	94	Striped red shrimp	3, 30
<i>splendens, Beryx</i>	157, 162, 172	Striped seabream	174
Splendid alfonso	157	STROMATEIDAE	20, 138, 191
<i>Spondyliosoma cantharus</i>	176	<i>Stromateus fiatola</i>	191
Sponge crabs	41	Strumpfbandfisch	184
Spotted greeneye	145	Strykysterhaai	88
Spotted gullyshark	81	<i>Stylopandalus richardi</i>	29
Spotted opah	156	Subantarctic fur seal	211
Spotted spiny dogfish	86	Subantarctic skua	205
<i>spp, Ulva</i>	25	<i>submi, Steromastis</i>	36
<i>springeri, Raja</i>	97	Subtropical flying fish	155
Squale bouclé	88	Subtropies vliënde vis	155
Squale savate	84	Südafrikanische	173
Squale savate lutin	84	Südafrikanische Sardelle	143
Squalechagrin commun	82	Südafrikanische Sardine	143
Squale-chagrin de l'Atlantique	83	Südafrikanischer Galjoen	178
Squale-grogneur veloute	86	Südafrikanischer Kingklip	152
Squale-savate à long nez	85	Südlicher Glatthai	80
Squalid sharks	3	<i>Sufflogobius bibarbatus</i>	2, 180, 200
SQUALIDAE	12, 82 - 87	<i>suhmi, Galiteuthis</i>	56
SQUALIFORMES	75	<i>Suhria vittata</i>	24
<i>Squalus acanthias</i>	86	Suid-Afrikaanse pelser	143
<i>Squalus blainvillei</i>	87	Suidelike harder	179
<i>Squalus megalops</i>	87	Suidelike rondloper	171
<i>Squalus mitsukurii</i>	87	SULIDAE	21, 203
<i>squamifera, Eumunidae</i>	40	<i>superciliosus, Alopias</i>	73, 78
<i>squamosus, Centrophorus</i>	3, 83	Surf shrimp	31
<i>squamulosus, Scymnodon</i>	86	Süßwassergarnele	33
Squaretails	139	Swaardvis	187
Squat lobsters	40	Swallowers	134
<i>Squatina</i>	75	Swallowtail seaperch	165
<i>Squatina aculeata</i>	88	Swart bottervis	188
<i>Squatina oculata</i>	88	Swart slymkop	158
SQUATINIDAE	12, 88	Swartroef	188
SQUATINIFORMES	75	Swartrugmalmok	200
<i>squinado, Maja</i>	45	Swift tern	199
Stachelhai	88	Swimming crabs	43
Stargazers	134	Swimming shrimp	31
Steenklipvis	178	Swordfish	137, 187
Steinrochen	94	<i>Syacium micrurum</i>	192
Stekelneus-perdvis	161	<i>Symbolophorus boops</i>	146
<i>Stercorarius parasiticus</i>	205	<i>Sympagrus dimorphus</i>	40
<i>Stercorarius pomarinus</i>	205	<i>Sympagrus macrocerus</i>	40
<i>Stereomastis grimaldi</i>	36	<i>Symphurus normani</i>	195
<i>Stereomastis submi</i>	36	<i>Synagrops microlepis</i>	3, 128, 164
<i>Stereomastis talismani</i>	36	SYNAPHOBANCHIDAE	14, 111
<i>Sterna balaenarum</i>	199	<i>Synaphobranchus kaupi</i>	111
<i>Sterna bergii</i>	199	SYNGNATHIDAE	17, 126
STERNOPTYCHIDAE	14, 114	SYNGNATHIFORMES	126
Stingrays	91	<i>Syngnathus acus</i>	126
<i>stiriata, Gigartina</i>	23	SYNODONTIDAE	15, 116, 145

T

<i>talismani</i> , <i>Stereomastis</i>	36	Tollo flecha	84
Tamboril liebre	195	Tollo lucero bandoneado	85
Tamboril mondeque	195	Tollo lucero liso	86
Tapir du Cap	141	Tollo lucero mocho	85
<i>Taractes rubescens</i>	170	Tollo negro merga	83
<i>Taractichthys longipinnis</i>	171	Tollo pajarito	84
<i>tarda</i> , <i>Pasiphaea</i>	28	Tollo trompalarga	85
Tassergal	167	Tongue weed	23
Taupe bleu	78	Tonguefishes	139
<i>taurus</i> , <i>Carcharias</i>	72, 77	Toothed whales	206, 208
<i>taurus</i> , <i>Eugomphodus</i>	77	Tope shark	80
Telescope cardinal	166	Toro bacota	77
<i>telescopus</i> , <i>Epigonus</i>	166	TORPEDINIDAE	13, 90, 92
Teleskoop-kardinaal	166	TORPEDINIFORMES	90
Teleskop-Kardinalfisch	166	<i>Torpedo nobiliana</i>	92
<i>tenuis</i> , <i>Benthodesmus</i>	183	Torpille noire	92
Téraglin	177	Tortue caouanne	197
<i>teres</i> , <i>Etrumeus</i>	142	Tortue caret	197
Tetradontiform fishes	140	Tortue luth	198
Tétra-gonure atlantique	191	Tortue olivâtre	198
Téragonure de Cuvier	191	Tortue verte	197
TETRAGONURIDAE	20, 139, 191	Tortuga blanca	197
<i>Tetragonurus atlanticus</i>	191	Tortuga de carey	197
<i>Tetragonurus cuvieri</i>	191	Tortuga golfina	198
TETRAODONTIDAE	20, 140, 195	Tortuga laud	198
TETRAODONTIFORMES	140	<i>torvus</i> , <i>Congiopodus</i>	161
<i>Tetrapterus albidus</i>	187	Totenkopfchimäre	101
<i>Tetrapturus pfluegeri</i>	188	Toutenon angolais	66
TEUTHOIDEA	52	Toutenon souffleur	66
<i>Teuthowenia maculata</i>	56	TRACHICHTHYIDAE	16, 124, 158 - 159
Thinlip splitfin	3, 164	<i>Trachinocephalus myops</i>	116, 145
Thintail thresher	78	TRACHIPTERIDAE	16, 123, 156
Thon élégant	184	<i>Trachipterus</i>	123
Thon obèse	186	<i>Trachipterus trachipterus</i>	156
Thornback ray	94	<i>Trachurus capensis</i>	3, 169
Thornback skate	94	<i>Trachurus trachurus</i>	169
Thresher shark	78	<i>Trachurus trecae</i>	5, 169
Thresher sharks	73	<i>trachurus</i> , <i>Trachurus</i>	169
Thun	186	<i>trachipterus</i> , <i>Trachipterus</i>	156
<i>Thunnus alalunga</i>	186	<i>Trachyrinchus scabrus</i>	3, 151
<i>Thunnus albacares</i>	186	<i>Trachyscorpia capensis</i>	163
<i>Thunnus obesus</i>	186	Transparent octopus	57
<i>Thysites atun</i>	2, 183	<i>transversus</i> , <i>Pachygrapsus</i>	46
<i>thysanophora</i> , <i>Eledone</i>	58	<i>trecae</i> , <i>Trachurus</i>	5, 169
THYSANOTEUTHIDAE	11, 55, 67	Tremolina negra	92
<i>Thysanoteuthis rhombus</i>	67	Tres colas	165
Tiburón anguila	77	TRIAKIDAE	12, 74, 80 - 81
Tiburón azul	82	<i>Triakis megalopterus</i>	81
Tiburón cobrizo	81	TRICHIURIDAE	19, 137, 183 - 184
Tiburón comadiza	81	<i>Trichiurus lepturus</i>	184
Tiburón de clavos	88	Triggerfishes	140
Tiburón nocturno	82	<i>Trigla lyra</i>	164
Tiefenwasser-Kapseechecht	147	TRIGLIDAE	17, 127, 163 - 164
Tiefseegarnele	30, 34	<i>tripes</i> , <i>Nealotus</i>	181
Tieso gris	141	Tripletails	131
Tieso trompudo	141	<i>Triplophus hemingi</i>	114
Toadfishes	119, 128	Trompetero	161
<i>Todarodes angolensis</i>	66	Trompetero manchado	161
<i>Todarodes sagittatus</i>	3	Tropical two-wing flyingfish	155
<i>Todarodes sagittatus angolensis</i>	49	<i>tropicalis</i> , <i>Arctocephalus</i>	211 - 212
<i>Todaropsis eblanae</i>	3, 49, 66	Tropiese tweevlerk-vliëende vis	155
Tollo dentado	81	True crabs	41
		True lobsters	36
		True sole	194

<i>truncatus, Tursiops</i>	210
Tube shoulders	113
<i>tuberculata, Ocythoe</i>	58
Tunas	137
Tursion	210
<i>Tursiops truncatus</i>	210
Tweeoog-roog	96
Twineye skate	96
Twotone fingerfin	178

U

<i>Ulva spp.</i>	25
ULVACEAE	25
Umbrella squids	54
<i>Umbrina canariensis</i>	177
<i>upsicephalus, Lophius</i>	3, 154
URANOSCOPIDAE	19, 134
<i>uyato, Centrophorus</i>	82

V

<i>vaillanti, Lophius</i>	154
<i>valdiviae, Bathypolypus</i>	58
Vals doringrug-roog	97
Vampyroteuthis infernalis	57
VAMPYROMORPHA	57
VAMPYROTEUTHIDAE	11, 57
<i>varidens, Aristeus</i>	3, 30
Varkie	171
<i>velani, Schedophilus</i>	189
Velvet dogfish	86
Velvet whalefishes	125
<i>Venefica proboscidea</i>	111
<i>veranyi, Chiroteuthis</i>	56
<i>vermiculata, Sepia</i>	60
<i>verrucosa, Gracilaria</i>	23
<i>verrucosus, Allocyttus</i>	160
Verrugato de Canarias	177
<i>vicinus, Bathyuroconger</i>	142
Vieräugiger Spiegelrochen	96
<i>violacea, Dasyatis</i>	98
<i>violacea, Pteroplatytrygon</i>	98
Violetter Stechrochen	98
Viperfishes	115
Virli dentu	81
<i>Vitreledonella richardi</i>	57
VITRELEDONELLIDAE	11, 57
<i>vittata, Suhria</i>	24
Vlakwater-stokvis	147
Voilier	187
Volador	155
Volador aleta negra	155
<i>volatilis, Ornithoteuthis</i>	55
<i>Volitans, Exocoetus</i>	155
<i>Vomer setapinnis</i>	168
<i>vomerinus, Lophius</i>	154
<i>vulgaris reynaudi, Loligo</i>	61
<i>vulgaris, Loligo</i>	3, 61
<i>vulgaris, Octopus</i>	58, 68
<i>vulpinus, Alopias</i>	78

W

<i>wallacei, Raja</i>	98
Warty gracilaria	23

Warty oreo	160
Wavyfishes	116
Weasel sharks	74
Wedge sole	193
<i>wedli, Phrynichthys</i>	121
Weiß Stumpfnase	175
Weißer Marlin	187
Weißer Thun	186
Weißhai	77
Weskus-platannavis	153
Weskus-slangpaling	141
Weskus-steenbras	173
Weskus-tongvis	193
West African geryon	39, 45
West African geryon crab	5
West coast rock lobster	37
West coast seabream	173
West coast snake-eel	141
West coast sole	193
West coast steenbras	173
Westafrikanischer Anglerfisch	154
Westcoast toadfish	153
Westküsten-Seezunge	193
Whalefishes	125
Whip squids	56
White barbel	144
White marlin	187
White pelican	199, 203
White seabream	173
White seacatfish	144
White skate	94
White steenbrass	173
White stumpnose	175
White-breasted cormorant	199, 204
Whitecapped albatross	200
White-chinned petrel	201
Whitehead's round herring	142
<i>whiteheadi, Etrumeus</i>	142
Whitespotted smooth-hound	80
Wießer Thunfisch	186
Wilson's storm-petrel	202
Wit marlyn	187
Wit seebaber	144
Witdoodshaai	77
Witkenpylstormvoel	201
Witkol-houndhaai	80
Witpoeding-roog	98
Witsteenbras	173
Witstompneus	175
Woodward's pelagic shrimp	31
<i>woodwardi, Funchalia</i>	31
Wrackbarsch	164
Wrakvis	164
Wreckfish	164
Wreckfishes	128
Wrinkled cuttlefish	61

X

XANTHIDAE	9 - 10, 43
<i>Xenolepidichthys dalgleishi</i>	125
<i>Xiphias gladius</i>	187
XIPHIIDAE	19, 137, 187
<i>Xiphiurus capensis</i>	152

Y

Yellow skin	24
Yellow sole	194
Yellow spotted skate	98
Yellowbelly rockcod	165
Yellowfin tuna	155, 186
Yellow-nosed albatross	201
Yellowspotted catshark	79
Yellowtail amberjack	168

Z

Zanzibar tonguesole	195
<i>zanzibariensis</i> , <i>Cynnoglossus</i>	195
ZEIDAE	17, 125, 159
ZEIFORMES	125, 134
<i>Zenopsis conchifer</i>	159
<i>Zeus capensis</i>	2, 159
<i>Zeus faber</i>	159
ZOARCIDAE	19, 134
ZOARCHIFORMES	134
Zorro	78
<i>Zu cristatus</i>	156

COLOUR PLATES

Photo credits:

Jeppe Kolding

Plate I: Figs. 1-8

Plate II: Figs. 9-11, 14-16

Plate III: Figs. 17, 19-24

Plate IV: Figs. 26-32

Plate V: Figs. 33, 35, 37, 38, 40

Plate VI: Figs. 41, 42, 46, 48

Plate VII: Figs 50-54

Plate VIII: Figs. 57-64

Kent Carpenter

Plate II: Figs. 12, 13

Plate III: Fig. 18

Plate IV: Fig. 25

Plate V: Figs. 34, 36, 39

Plate VI: Figs. 43-45, 47

Plate VII: Figs 49, 56

Plate X: Figs. 74

Plate XI: Figs. 83-85

Gabriella Bianchi

Plate VII: Fig. 55

Oddgeir Alvheim

Plate IX: Figs. 65-71

Plate X: Figs. 72-73, 75-79

Plate XI: Figs. 80-82, 87

PLATE I



1. SOLENO CERIDAE : *Solenocera africana*



2. ARISTEIDAE: *Aristeus varidens*



3. PENAEIDAE: *Parapenaeus longirostris*



4. PASIPHA EIDAE: *Glyphus marsupialis*



5. PALINURIDAE: *Jasus lalandii*



6. NEPHROPIDAE: *Nephropsis atlantica*

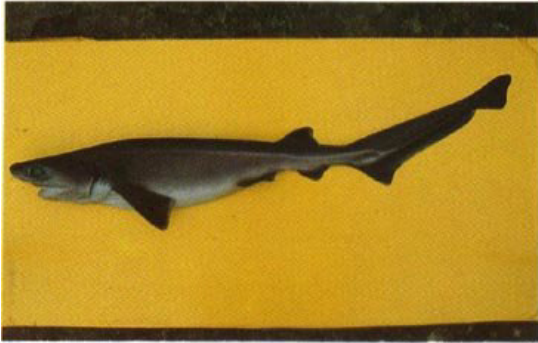


7. LITHODIDAE: *Uthodesferox*



8. GERYONIDAE: *Chaceon maritae*

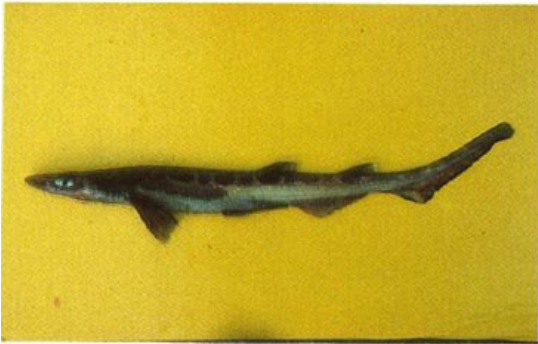
PLATE II



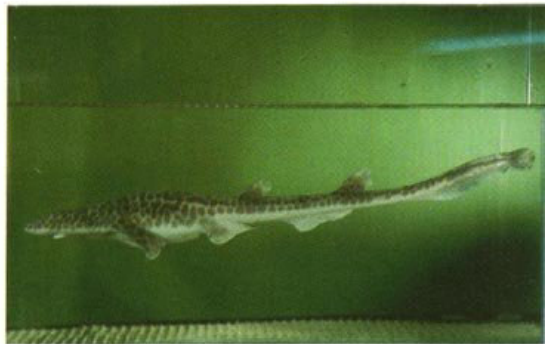
9. HEXANCHIDAE: *Hexanchus griseus*



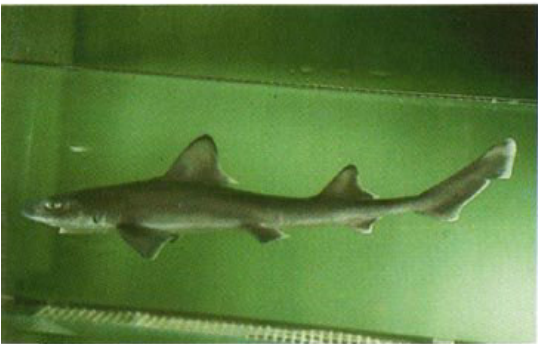
10. LAMNIDAE: *Isurus oxyrinchus*



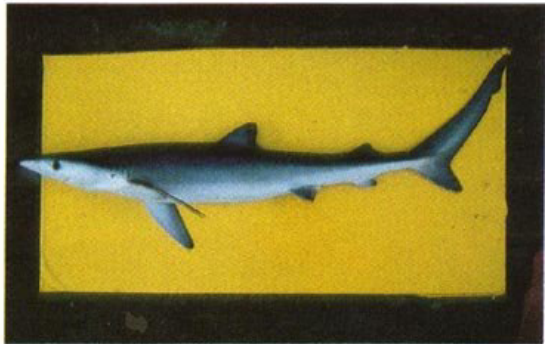
11. SCYLIORHINIDAE: *Galeus polli*



12. SCYLIORHINIDAE: *Holohalaelurus regani*



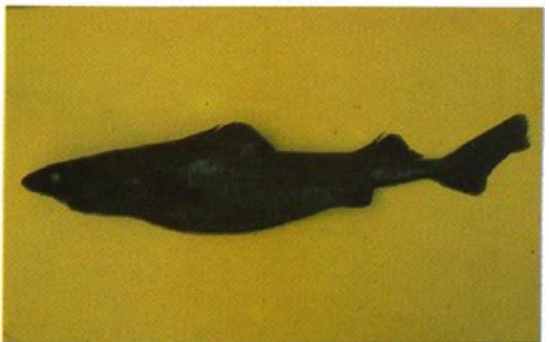
13. TRIAKIDAE: *Mustelus palumbes*



14. CARCHARHINIDAE: *Prionace glauca*

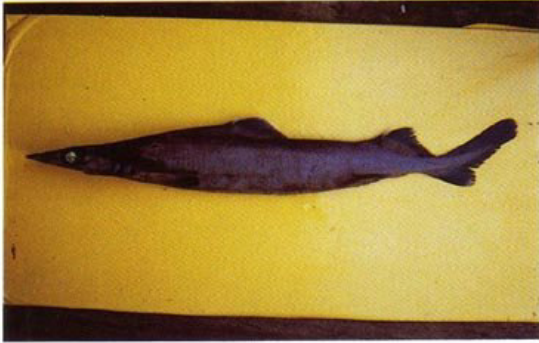


15. SQUALIDAE: *Centrophorus granulosus*

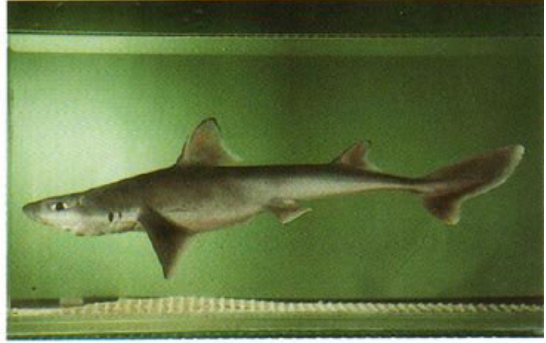


16. SQUALIDAE: *Centrophorus squamosus*

PLATE III



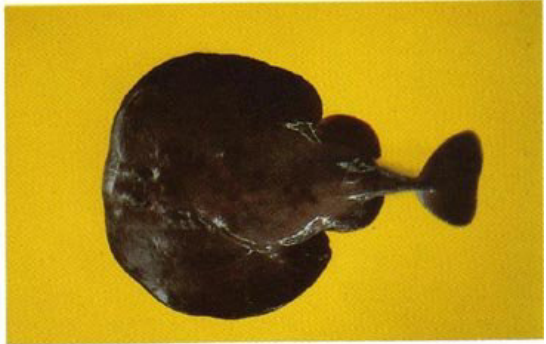
17. SQUALIDAE: *Deania calcea*



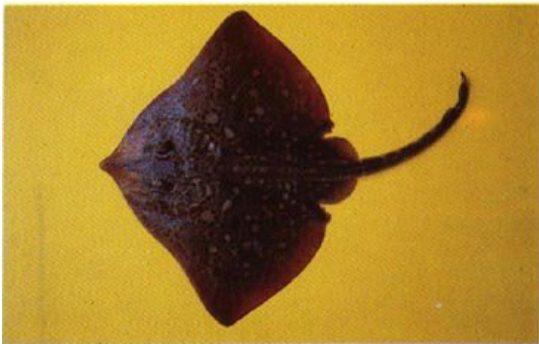
18. SQUALIDAE: *Squalus megalops*



19. ECHINORHINIDAE: *Echinorhinus brucus*



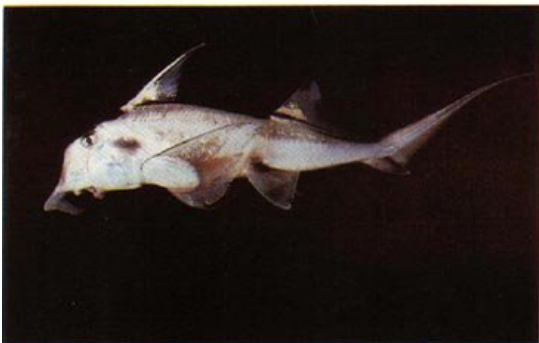
20. TORPEDINIDAE: *Torpedo nobiliana*



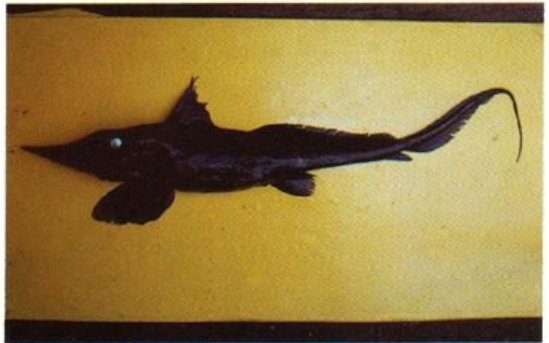
21. RAJIDAE: *Raja clavata*



22. RAJIDAE: *Raja doutrei*

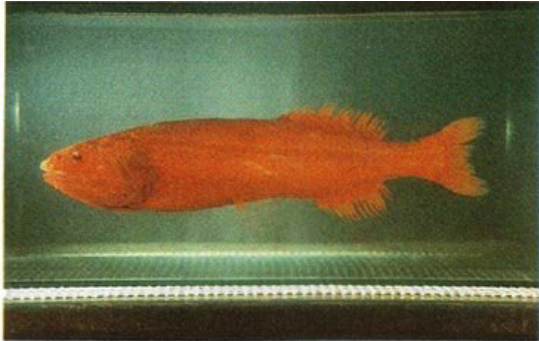


23. CALLORHINCHIDAE: *Callorhynchus capensis*



24. RHINCHIMAERIDAE: *Neoharriotta pinnata*

PLATE IV



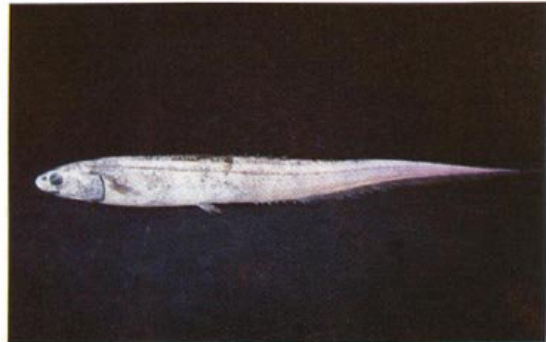
25. BARBOURISIIDAE: *Barboursia rufa*



26. PSYCHROLUTIDAE: *Ebinania costaecanarie*



27. ALBULIDAE: *Pterothrissus bellori*



28. NOTACANTHIDAE: *Notacanthus sexspinis*



29. CONGRIDAE: *Bassanago albescens*



30. CONGRIDAE: *Bathyuroconger vicinus*

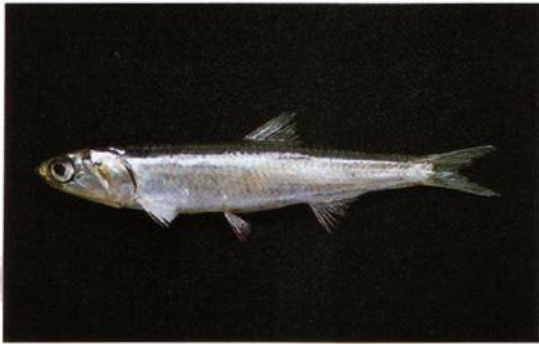


31. CLUP EIDAE: *Sardinella aurita*

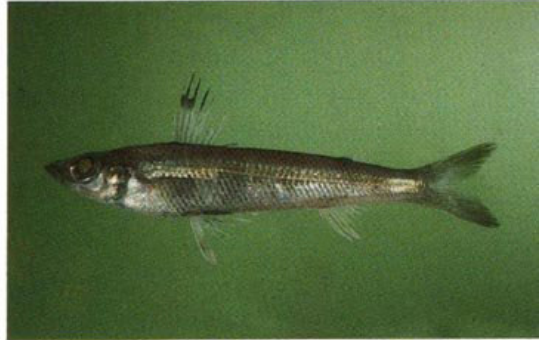


32. CLUPEIDAE: *Etrumeus whiteheadi*

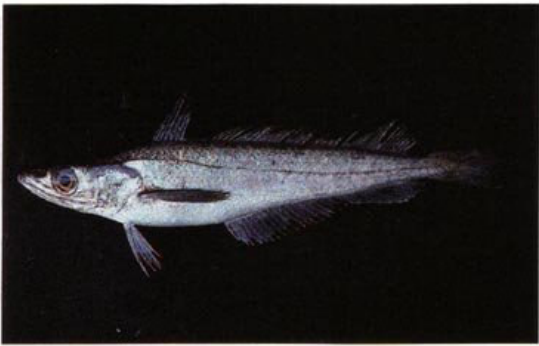
PLATE V



33. ENGRAULIDAE: *Engraulis capensis*



34. CHLOROPHTHALMIDAE: *Chlorophthalmus punctatus*



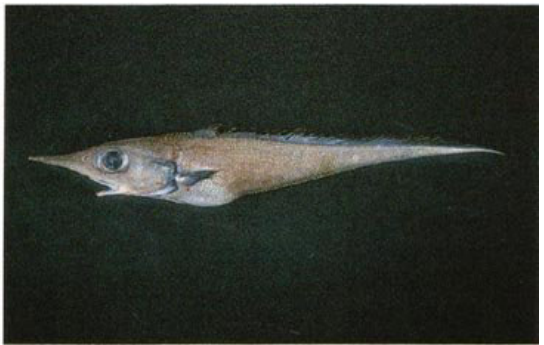
35. MERLUCCIIDAE: *Merluccius capensis*



36. MERLUCCIIDAE: *Merluccius paradoxus*



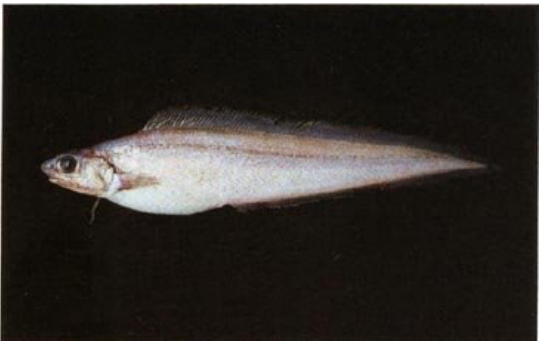
37. MORIDAE: *Physiculus capensis*



38. MACROURIDAE: *Trachyrincus scabrus*



39. OPHIDIIDAE: *Genypterus capensis*

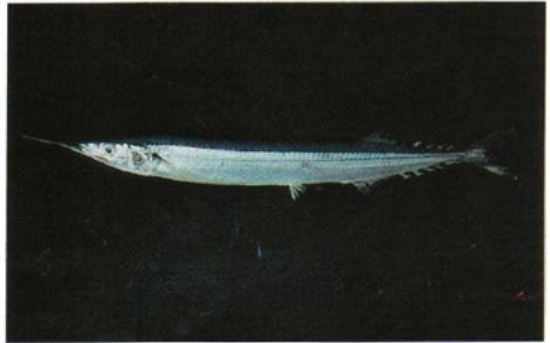


40. OPHIDIIDAE: *Selachophidium guentheri*

PLATE VI



41. LOPHIIDAE: *Lophius vomerinus*



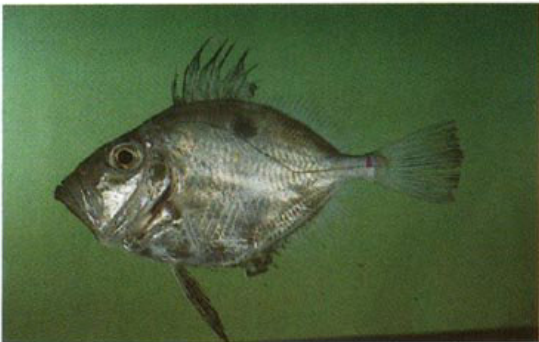
42. SCOMBERESOCIDAE: *Scomberesoxsaurus scomberoides*



43. BERYCIDAE: *Beryx spkndens*



44. TRACHICHTHYIDAE: *Hoplostethus melanopus*



45. ZEIDAE: *Zeus capensis*



46. MACRORAMPHOSIDAE: *Macroramphosus scolopax*



47. CONGIPODIDAE: *Congiopus spinifer*

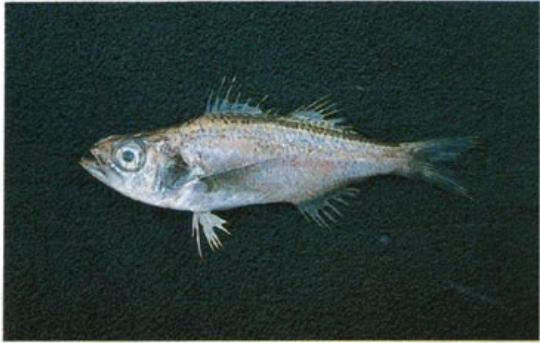


48. SCORPAENIDAE: *Helicolenus dactylopterus*

PLATE VII



49. TRIGLIDAE: *Chelidonichthys capensis*



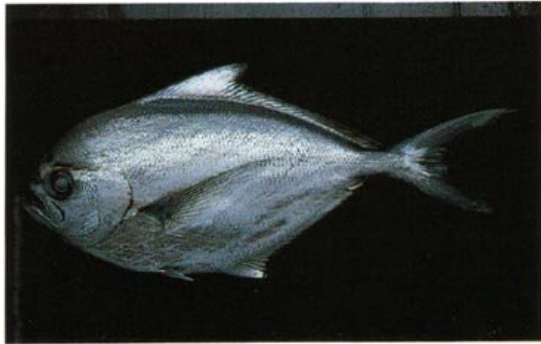
50. ACROPOMATIDAE: *Synagrops microlepis*



51. APOGONIDAE: *Epigommpandionis*



52. CARANGIDAE: *Trachurus capensis*



53. BRAMIDAE: *Brama brama*



54. EMMELICHTHYIDAE: *Emmelichthys nitidus nitidus*

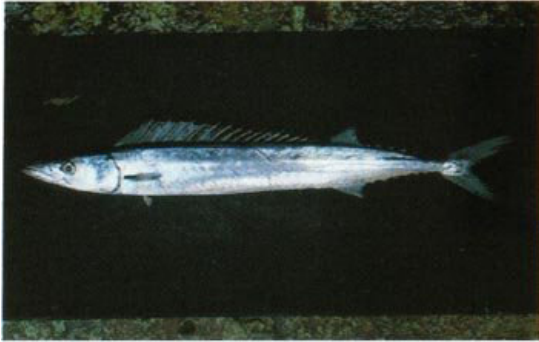


55. SPARIDAE: *Dentex macrophthalmus*

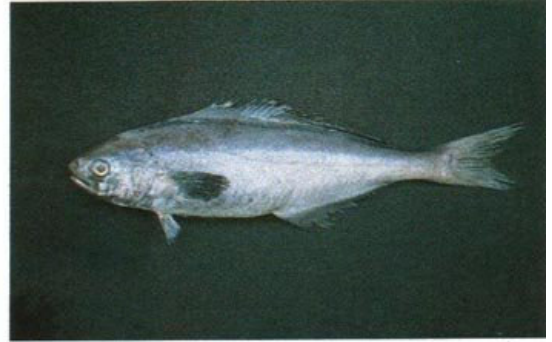


56. GOBIIDAE: *Sufflogobius bibarbatus*

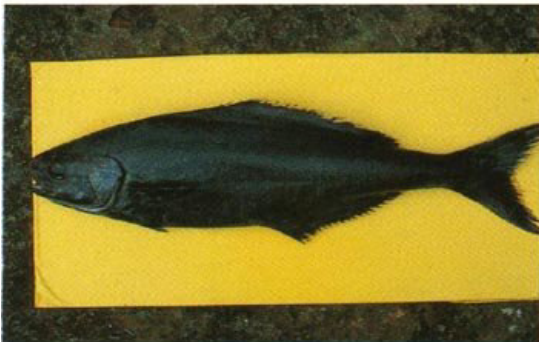
PLATE VIII



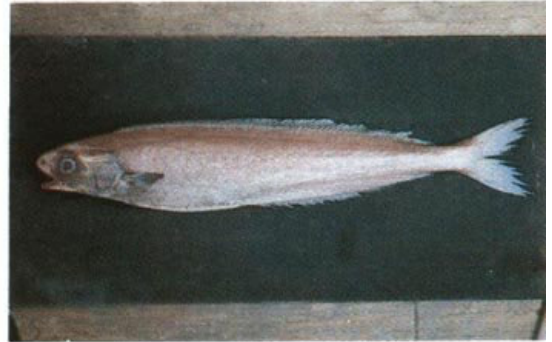
57. GEMPYLIDAE: *Thyrsites atun*



58. CENTROLOPHIDAE: *Centrolophus niger*



59. CENTROLOPHIDAE: *Centrolophus niger*



60. CENTROLOPHIDAE: *Schedophilus huttoni*



61. NOMEIDAE: *Cubiceps capensis*



62. SOLEIDAE: *Austroglossus microlepis*



63. CYNOGLOSSIDAE: *Cynoglossus capensis*



64. CYNOGLOSSIDAE: *Cynoglossus zanzibariensis*

PLATE IX



65. PENAEIDAE: *Funchalia woodwardi*
34 mm carapace length



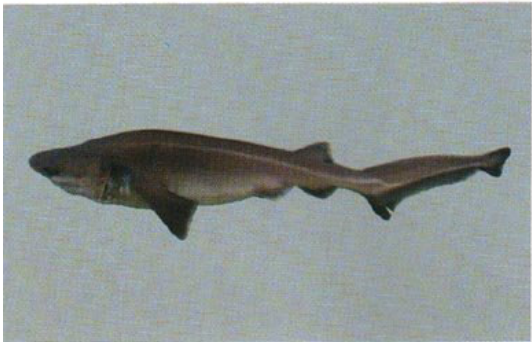
66. PANDALIDAE: *Heterocarpus grimaldi*
41 mm carapace length



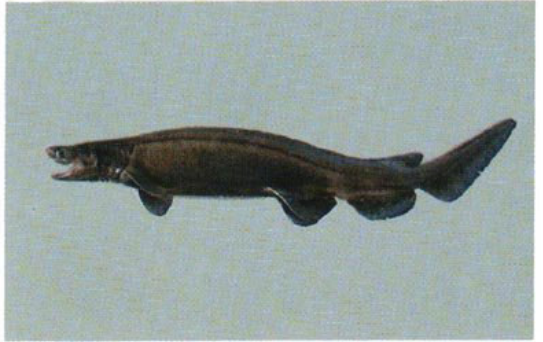
67. SEPIIDAE: *Sepia australis*
55 mm mantle length



68. LOLIGINIDAE: *Loligo vulgaris reynaudi*
290 mm mantle length



69. HEXANCHIDAE: *Heptanchias perlo*
101 cm total length



70. CHLAMYDOSELACHIDAE: *Chlamydoselachus anguineus*
125 cm total length



71. SQUALIDAE *Etmopterus* cf. *Brachyurus*
23 cm total length



72. RAJIDAE *Bathyraja smithii*
98 cm total length

PLATE X



73. RAJIDAE *Raja confundens*
55 cm total length



74. CLUPEIDAE *Sardinops ocellatus*
21 cm total length



75. ALEPOCEPHALIDAE *Bajacalifornia megalops*
38 cm standard length



76. MYCTOPHIDAE *Symbolophorus boops*
12 cm total length



77. PHOSICHTHYIDAE *Phosichthys argenteus*
18 cm total length



78. MORIDAE *Laemonema laureysi*
23 cm total length

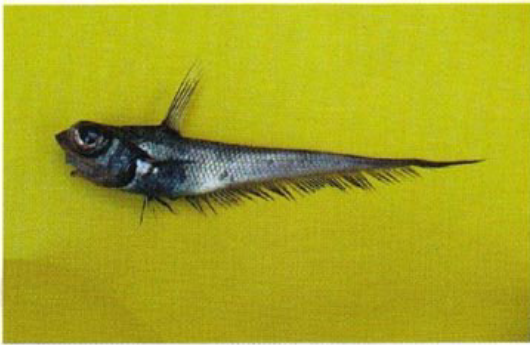


79. MACROURIDAE *Caelorinchus braueri*
24 cm total length

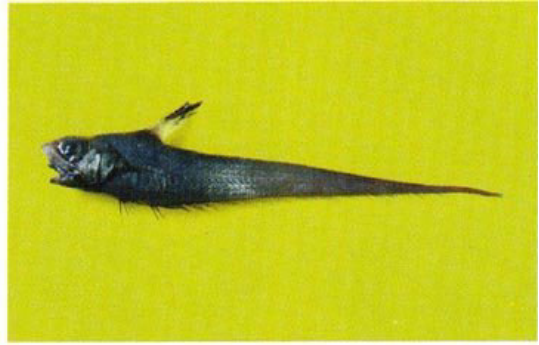


80. MACROURIDAE *Caelorinchus matamua*
36 cm total length

PLATE XI



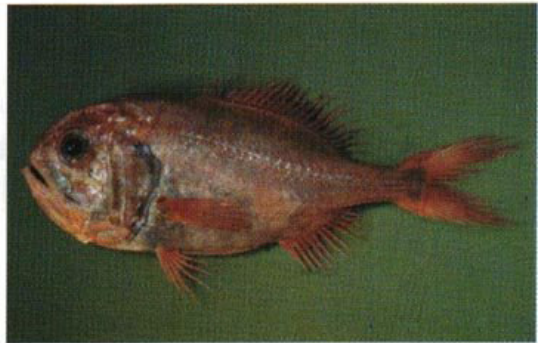
81. MACROURIDAE *Caelorinchus simorhynchus*
27 cm total length



82. MACROURIDAE *Nezumia micronychodon*
19 cm total length



83. TRACHICHTHYIDAE *Hoplostethus atlanticus*
23 cm total length



84. TRACHICHTHYIDAE *Hoplostethus atlanticus*
27 cm standard length (35 cm total length)



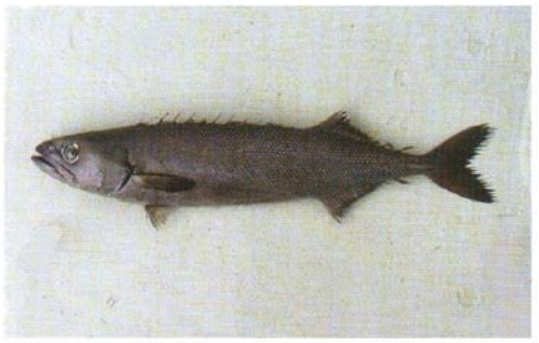
85. OREOSOMATIDAE *Allocyttus verrucosus*
13.5 cm standard length



86. OREOSOMATIDAE *Neocyttus rhomboidalis*
23.5 cm standard length



87. EPIGONIDAE *Epigonus telescopus*
29 cm standard length



88. GEMPYLIDAE *Ruvettus pretiosus*
68 cm total length