

OCCASIONAL PAPER NO. 178

**RECORDS OF THE
ZOOLOGICAL SURVEY OF INDIA**

**An account of Ichthyofauna of
Andaman & Nicobar Islands,
Bay of Bengal**

**D. V. RAO
KAMLA DEVI
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Edited by the Director, Zoological Survey of India



सत्यमेव जयते

**Zoological Survey of India
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2000**

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Page 1 - 434

CONTENTS

Introduction	1
Systematic Account	10
Acknowledgements	353
References	353
Annexure-I	367
Index	390
Plates	48 Pages

INTRODUCTION

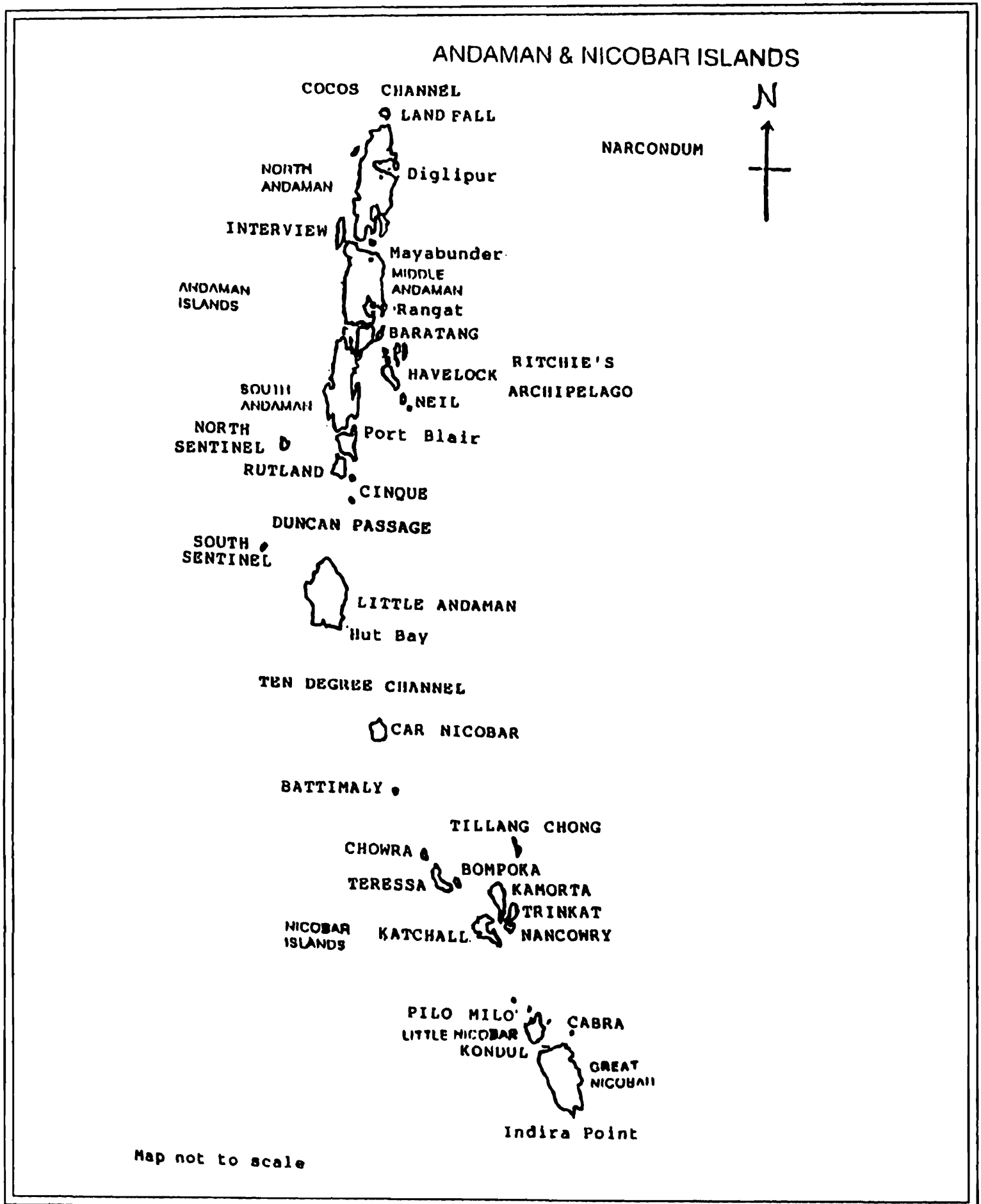
The Andaman and Nicobar Islands commonly known as Bay Islands comprise over 500 islands, islets and rocky outcrops of various sizes in Bay of Bengal situated between 6°45' and 13°45' N latitude and 92°10' and 94°15' E longitude in a North-South direction (Map. 1). The islands have a land area of 8,293 sq. km. Their total coast line of 1,962 km is about one-fourth of that of India. Of the 2 million sq. km. of the Exclusive Economic Zone of India, the area has around the Andaman and Nicobar Islands comprises 30%. Being Ocenebraic islands, the continental shelf around them is narrow with an area of about 16,000 sq. km. only. The limited shelf area is compensated by extension of marine habitats into numerous bays, creeks and inlets on the landward side of the islands. The islands are characterised by fringing reefs on the eastern side and barrier reefs off the west coast.

Climate is typically tropical with annual rainfall of about 3000 mm and experiences an active south-west monsoon from June-September and north-east monsoon from Dec.-April. The atmospheric temperature varies from 18°C to 34°C and the coastal waters temperature varies from 27°C to 32°C and salinity fluctuates between 22 ppt and 32 ppt.

From the fish and fisheries view point, Andaman and Nicobar Islands are the most interesting and fascinating owing to the diversity of ichthyofauna occurring in the varied marine habitats, such as mangroves, creeks, rocky, extensive sandy beaches, muddy shores, coral reefs, etc. As there are no perennial freshwater streams, rivers or lakes in the islands, the freshwater fish fauna is poorly represented.

A perusal of literature shows that since Blyth's (1846, 1863) time work on ichthyofauna of these islands, the most important contributions being those of Day (1870), Alcock (1899), Annandale and Hora (1925), Mukherji (1935), Koumans (1940) and Herre (1939 and 1941). Subsequently several Oceanographic and fishery expeditions by 'Challenger', 'Valdivia', 'Investigator', 'Galathea', 'Kistna', 'Anton Brun', 'Sagara Sampada', etc. explored many areas of Andaman and Nicobar Islands and brought to light several new species and new records of fishes. In addition, scientists of Zoological Survey of India, Central Marine Fisheries Research Institute and many other scientific organisations, made valuable contributions to the knowledge of fish fauna of these Islands. The comprehensive lists of the fishes of Bay Islands by Talwar (1990) and Kamla Devi (1991) based on taxonomic account indicate the existence of nearly 800 species under 147 families.

The present work is based on the material collected from the different habitats of these islands by the authors and various survey parties of Z.S.I. The material studied and reported upon in the present account includes 2532 specimens belonging to 539 species from all the available habitats of the freshwater and marine environments in the A & N Islands. Of these 53 species indicated by asterisk (*) are recorded here for the first time from these islands. The following account includes key to families and taxonomic descriptions, habitats, distribution, etc. of the species encountered and key to distinguish them. The diagnostic features given are based on the specimens collected from the islands and studied by the authors, which have been listed under material examined in the text. Unless otherwise stated, the length of specimens given is total length. Only original bibliographic citation



Map 1. Map of Andaman & Nicobar Islands

followed by important latest references pertaining to each species is given though several standard publications have been consulted for proper identification and information on the distribution. The classification of fishes followed here is that of Nelson (1984), Smith and Heemstra (1986) and other revisionary works.

A comprehensive bibliography of taxonomic descriptions or records of fishes reported from the Andaman and Nicobar Islands has been provided. A complete list of species, so far reported with taxonomic descriptions from the islands which are not included in the text, is also provided (Annexure-I). All the material studied has been deposited in the reference collections of Zoological Survey of India at Port Blair.

Characters and Methods of Measuring and Counting

Knowing the terminology of the parts of fish is the first step for fish study. The terminology varies with the group of fish and particular terminology may be applicable to some groups. The general terminology and methods of counting and measuring are given below, and illustrated in figures 1-9.

BODY MEASUREMENTS

Total length : Distance from tip of snout to the extreme tip of caudal fin.

Standard length : Distance from tip of snout to mid base of caudal fin.

Caudal fin length : Distance between base of caudal to tip of caudal fin.

Head length : Distance from snout to hind edge of gill opening.

Snout length : Distance from tip of snout to front margin of orbit.

Interorbital space : Least width of fleshy area between eyes.

Postorbital length : Distance from rear edge of eye to posterior tip of operculum.

Maxillary length : Distance from tip of snout to rear edge of maxillary.

Eye diameter : Distance between free orbital rims.

Body depth : Greatest vertical height of body.

Pectoral fin length : Distance from the extreme base of the upper most ray to the farthest tip of fin.

Ventral fin length : Distance from the extreme base of the upper most ray to the farthest tip of the fin.

Disc length : The length from snout tip to the farthest margin of pectoral fin.

Disc width : The widest dimension between pectoral fins.

FIN FORMULA

The fin formula consists of Roman capital numerals for number of spines followed by Arabic numerals for the number of rays.

SCALE COUNT

Lateral line scale count : The number of scales along the lateral line from the shoulder girdle to the posterior end of the hypural bone.

Longitudinal scale rows : The number of scale rows between the shoulder girdle and posterior end of the hypural bone in species without a lateral line or with an interrupted lateral line.

Transverse scale rows : Number of scale rows between origin of dorsal fin to lateral line and from anal fin origin to lateral line following the natural scale row, excluding lateral line scale.

Predorsal scales : Number of scales in the dorsal midline in front of dorsal fin.

Interdorsal scales : Number of scales between the two dorsal fins.

Caudal peduncle scale rows : Scale count along the circumference at the narrowest part of caudal peduncle.

Gillrakers : The number of gillrakers on the entire 1st gill arch or separately in the upper, middle and lower portions depending on the species.

Abbreviations :

A—Anal fin.

C—Caudal fin.

D—Dorsal fin.

P—Pectoral fin.

L1—Lateral line.

Ltr—Lateral transverse scale rows.

Ls—Lateral scale series.

V—Ventral fin.

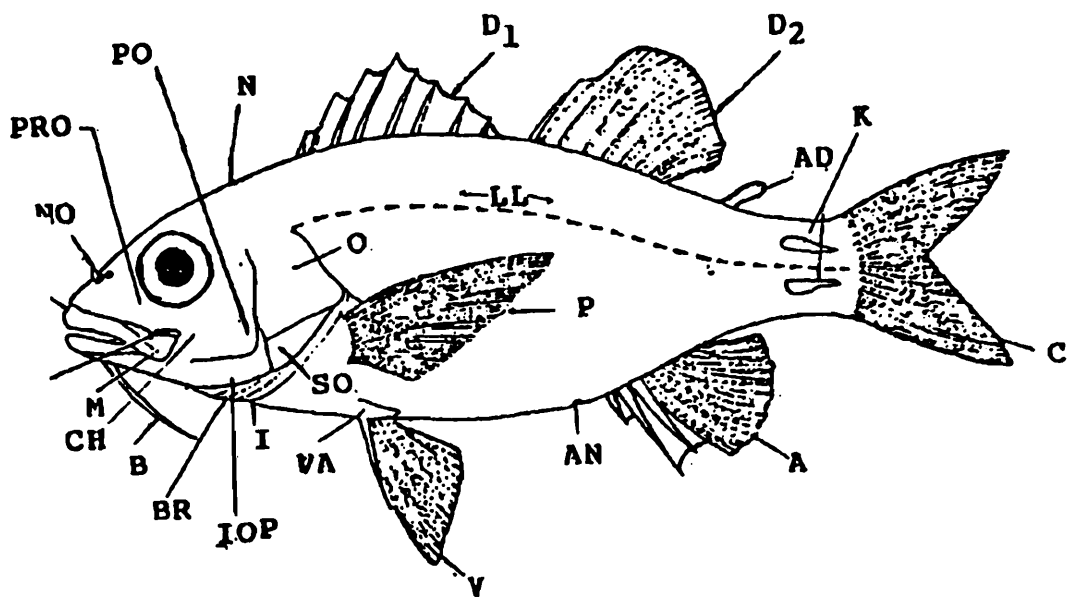


Fig. 1 External features of a “TYPICAL” Fish

A	Anal fin	D ₂	Second dorsal fin	O	Opercle
AD	Adipose fin	I	Isthmus	P	Pectoral fin
AN	Anus (Vent)	IOP	Interopercle	PM	Premaxilla
BA	Barbel	K	Keels	PO	Preopercle
BR	Branchiostegal rays	LL	Lateral line	PRO	Preorbital
C	Caudal fin	M	Maxilla	SM	Supra maxilla
CH	Cheek	N	Nape	SO	Subopercle
D ₁	First dorsal fin	NO	Nostrils	V	Ventral fin
				VA	Ventral axillary scale

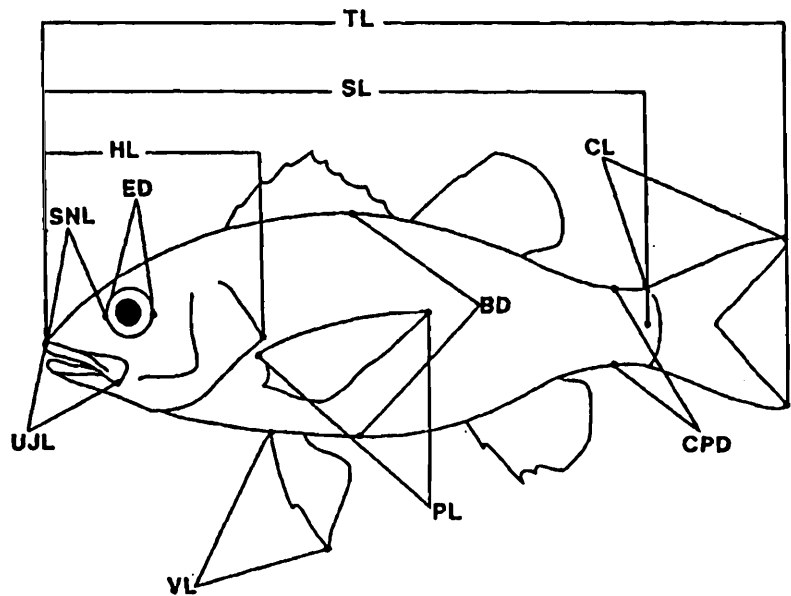


Fig. 2 Measurements of a “TYPICAL” Fish

BD	Body depth	HL	Head length	TL	Total length
CL	Caudal fin length	PL	Pectoral length	ML	Maxillary length
CPD	Caudal peduncle depth	SL	Standard length	VL	Ventral length
ED	Eye diameter	SNL	Snout length		

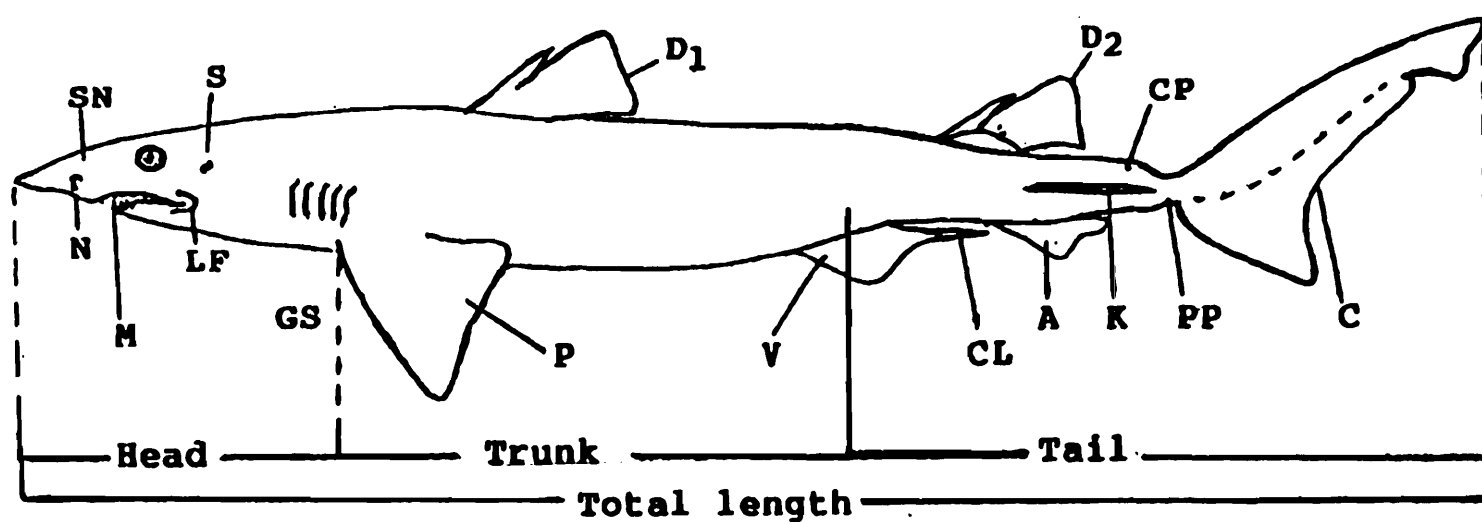


Fig. 3 Terminology and measurements of 'TYPICAL' Shark

A	Anal fin	GS	Gill slits	P	Pectoral fin
C	Caudal fin	K	Keel	SN	Snout
CL	Clasper	LF	Labial fold	S	Spiracle
D ₁	1st dorsal fin	M	Mouth	V	Ventral fin
D ₂	2nd dorsal fin	N	Nostril	PP	Precaudal pit

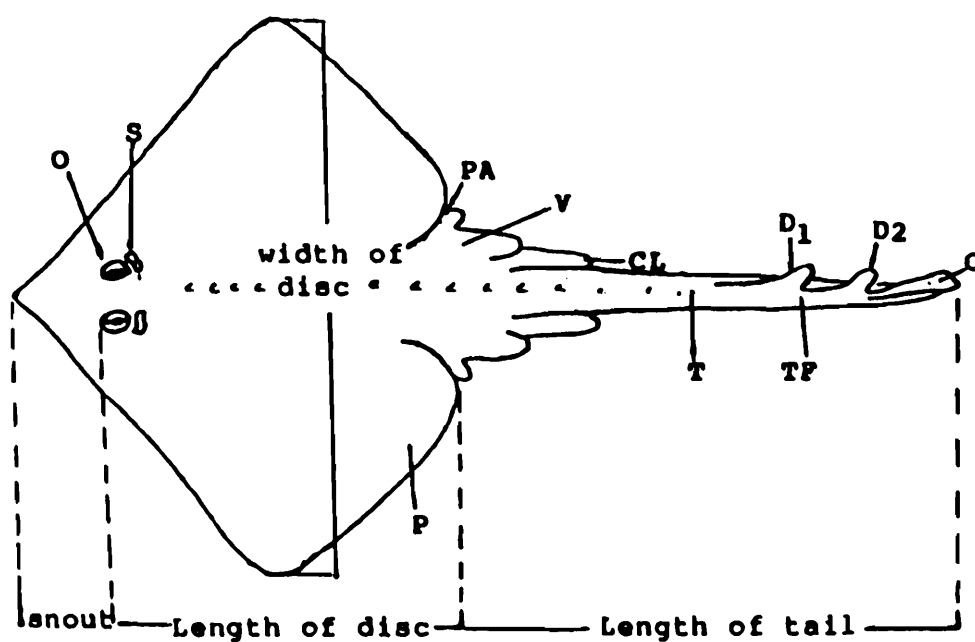


Fig. 4 Terminology and measurements of 'TYPICAL' Skate

C	Caudal fin	O	Orbit	T	Tail
CL	Clasper	P	Pectoral fin	TF	Tail fold
D ₁	1st dorsal fin	PA	Pectoral axil	V	Ventral fin
D ₂	2nd dorsal fin	S	Spiracle		

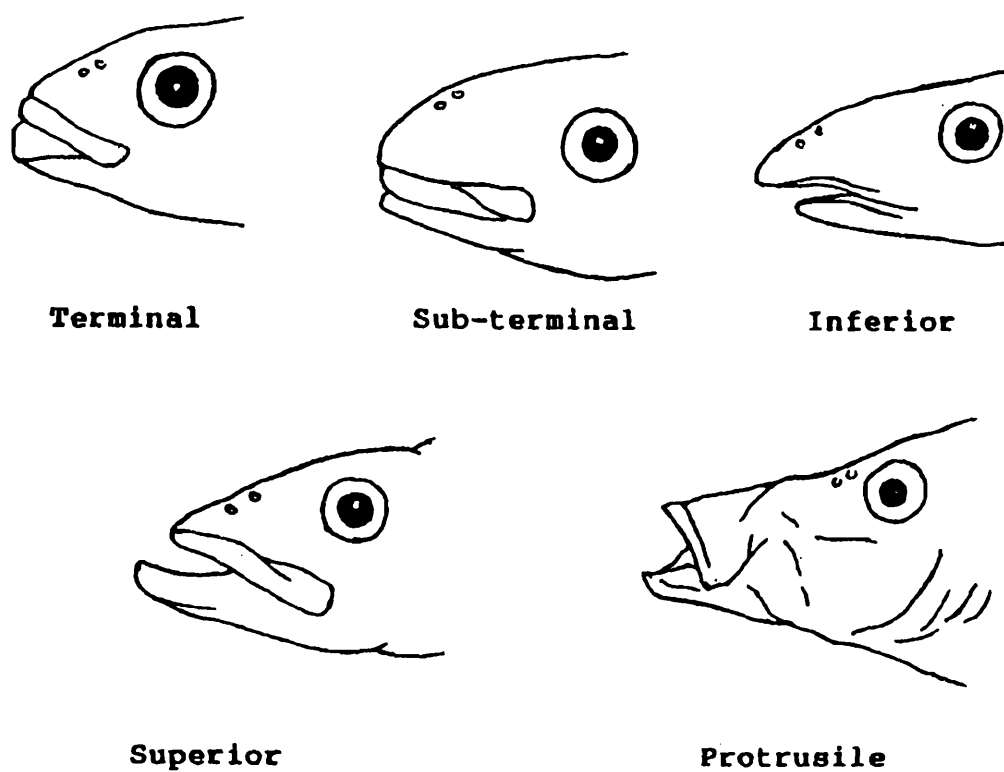


Fig. 5 Types of mouth

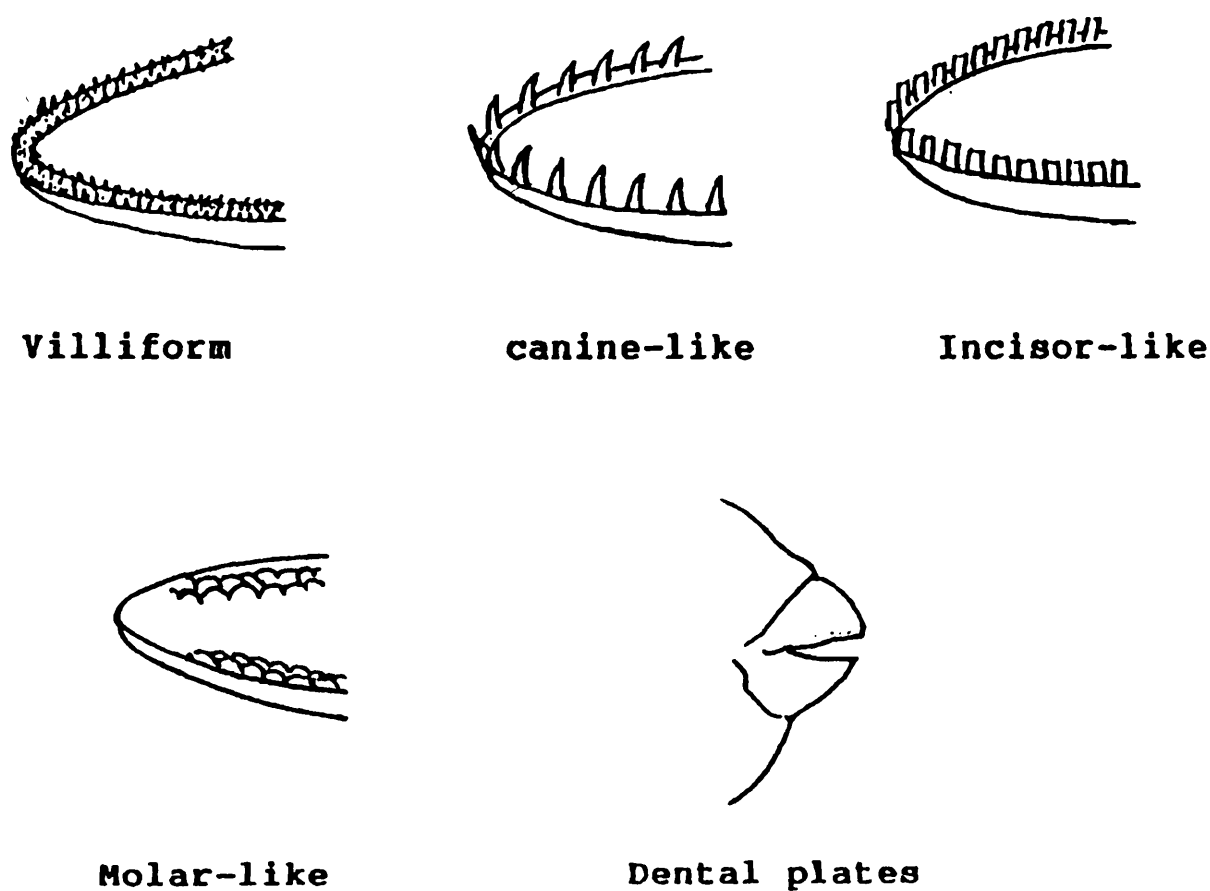
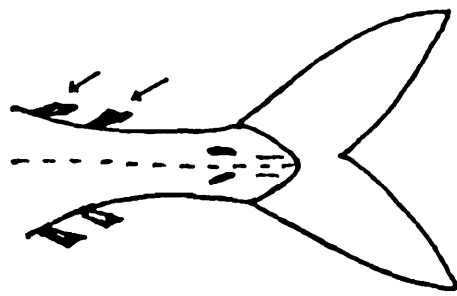
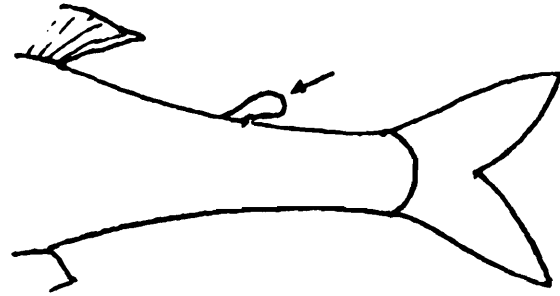
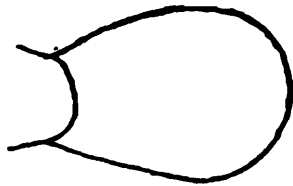
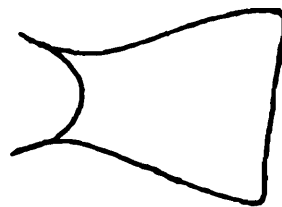
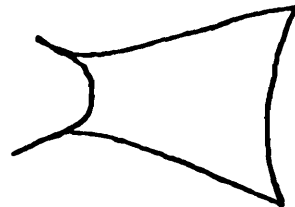
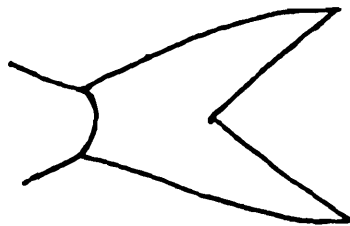
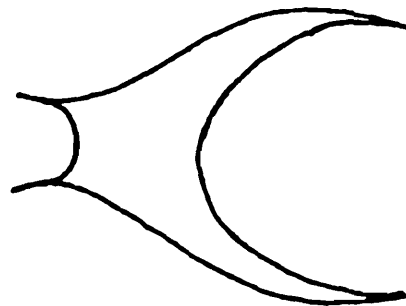
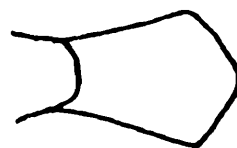


Fig. 6 Types of teeth

**Finlets****Adipose fin****Rounded****Truncate****Emarginate****Forked****Lunate****Pointed****Rhomboid****Fig. 7** Types of caudal fin

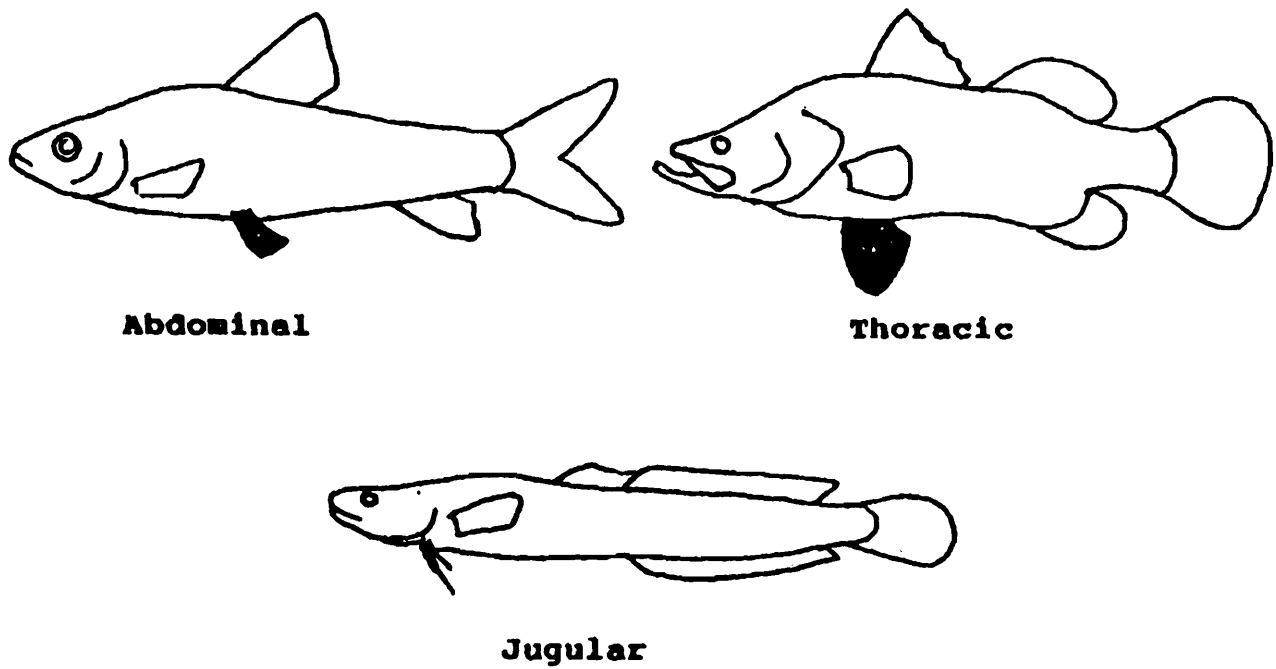


Fig. 8 Position of ventral fin

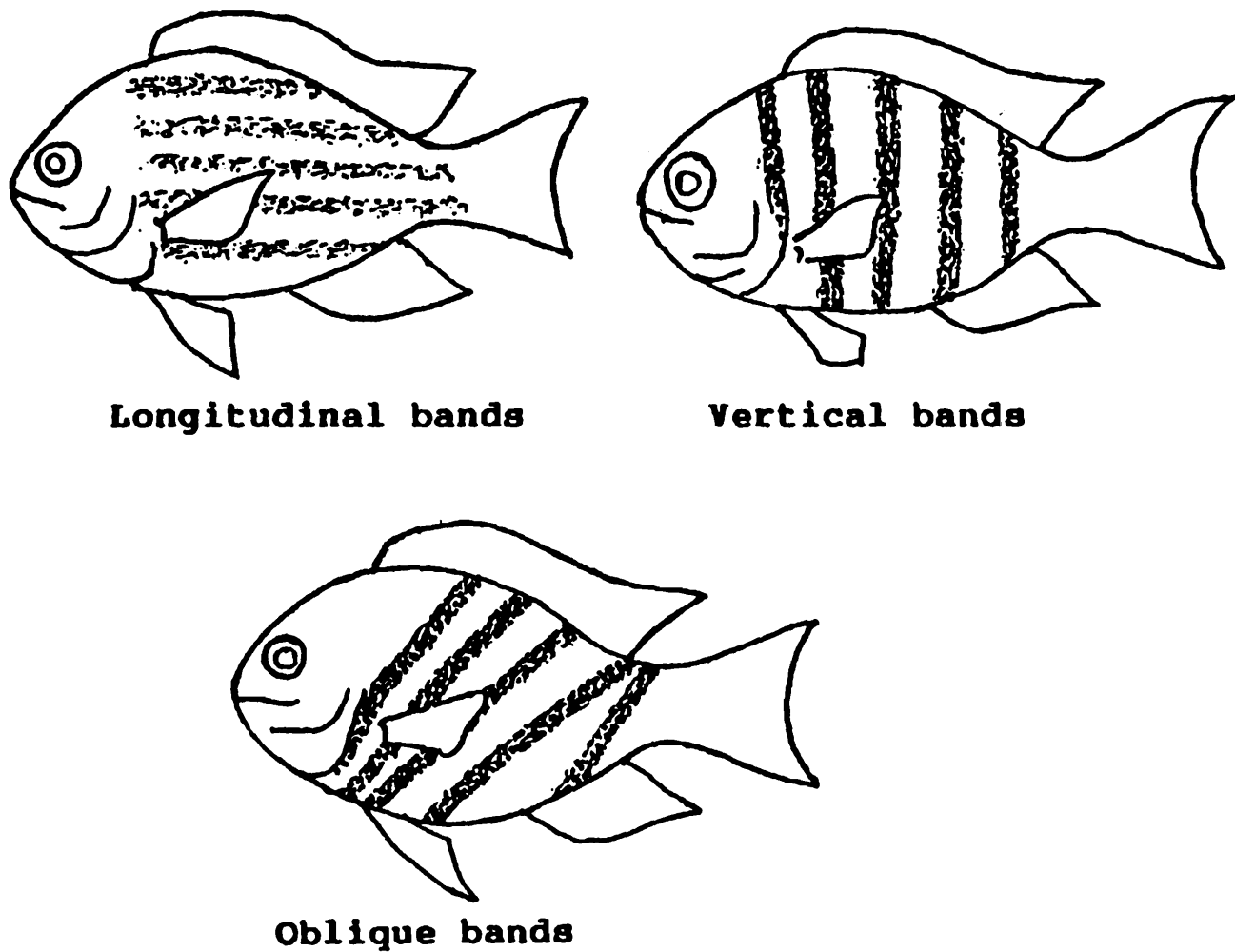


Fig. 9 Direction & Terminology of bands

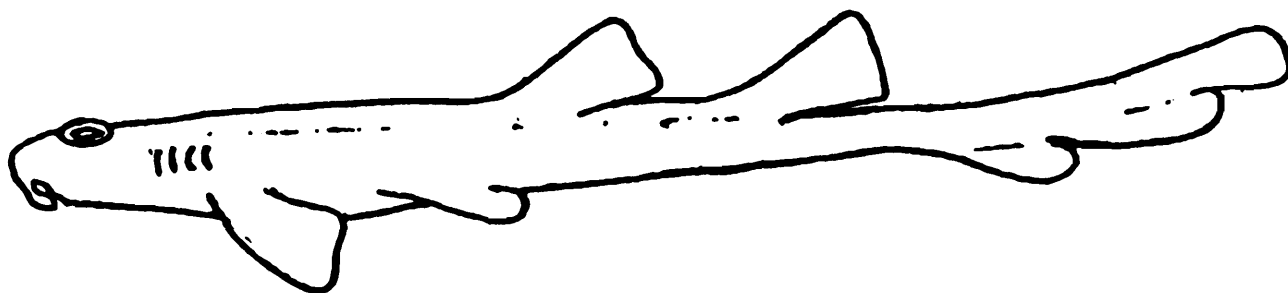
SYSTEMATIC ACCOUNT

Phylum CHORDATA

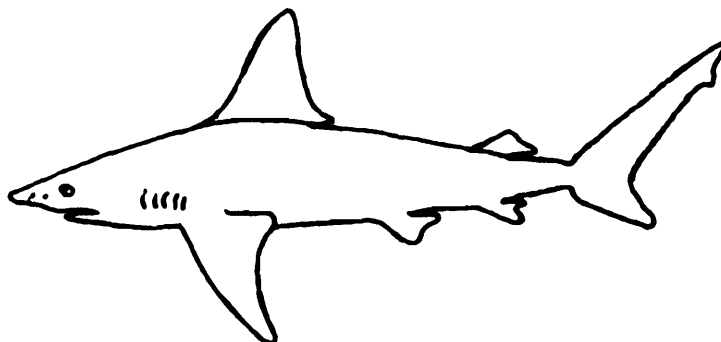
Sub-Phylum VERTEBRATA

Key to the Families

- 1a Endoskeleton cartilaginous, sometimes calcified; skin covered with placoid scales or naked; mouth beneath the head; spiracles present; gill openings separate, slit-like without gill cover (Operculum); no air bladder or lungs; fins without spines or rays (Class : CHONDRICHTHYES) 2
- 1b Endoskeleton bony; skin covered with cycloid or ctenoid scales or modified into ossified dermal plates or bony covering or naked; gill opening with gill cover (Operculum); air bladder generally present; fins with spines and rays (Class : OSTEICHTHYES) 7
- 2a Body spindle shaped; gill openings on sides of head; pectoral fin not attached to head; anal fin present; nictitating membrane present or absent (Order : LAMNIFORMES) 3
- 2b Body flat, disc-like, dorso-ventrally depressed (except sawfishes and guitarfishes); gill openings on ventral side of disc; pectoral fin round, disc-like, attached to head; anal fin absent; nictitating membrane absent (Order : RAJIFORMES) 4
- 3a Fourth and 5th gill openings behind origin of pectoral; caudal without distinct lobe; nostrils with distinct barbels ORECTOLOBIDAE

**Fig. 10** Orectolobidae

- 3b Fifth gill opening over or behind origin of pectoral fin; caudal fin with distinct lower lobe; nostrils without barbels CARCHARHINIDAE

**Fig. 11** Carcharhinidae

- 4a
- A pair of electric organs in front of disc; tail short, without spine; caudal fin large; mouth broadly arched TORPEDINIDAE

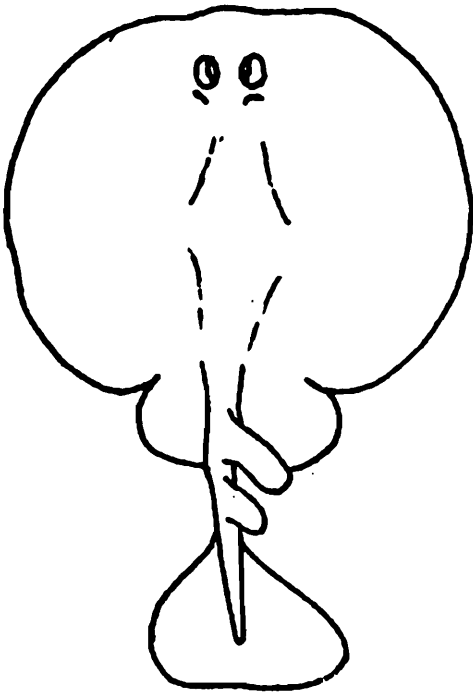


Fig. 12 Torpedinidae

- 4b
- No electric organs; tail long and slender, with or without spine; caudal fin narrow or absent; mouth slightly arched 5
- 5a
- Head and snout distinct from disc; eyes and spiracles lateral on head MYLIOBATIDAE

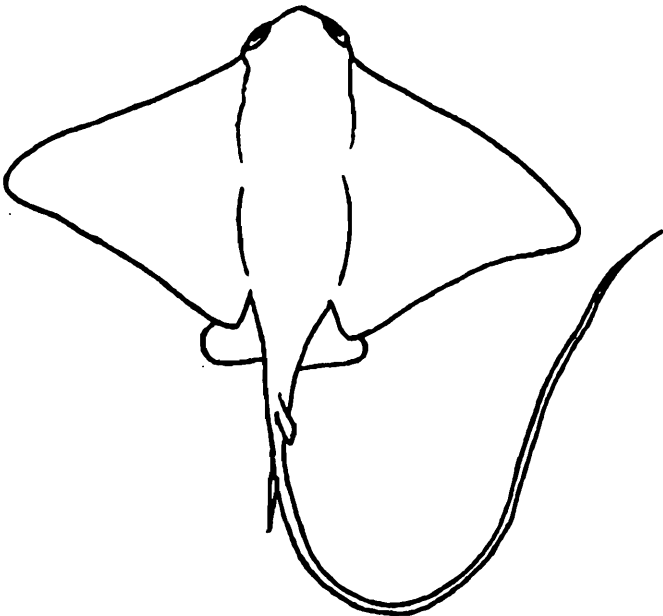


Fig. 13 Myliobatidae

- 5b Head and snout not distinct, fused with disc; eyes and spiracles on top of head 6
- 6a Two distinct dorsal fins, caudal fin present; tail without spine RHINOBATIDAE

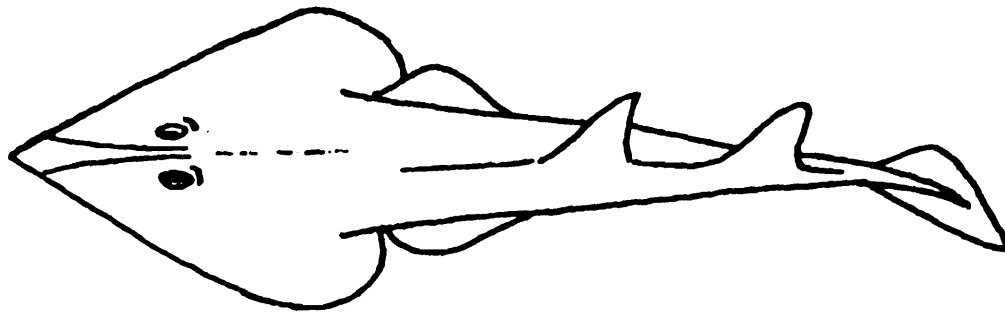


Fig. 14 Rhinobatidae

- 6b No dorsal and caudal fins; tail with strong pointed spine DASYATIDAE

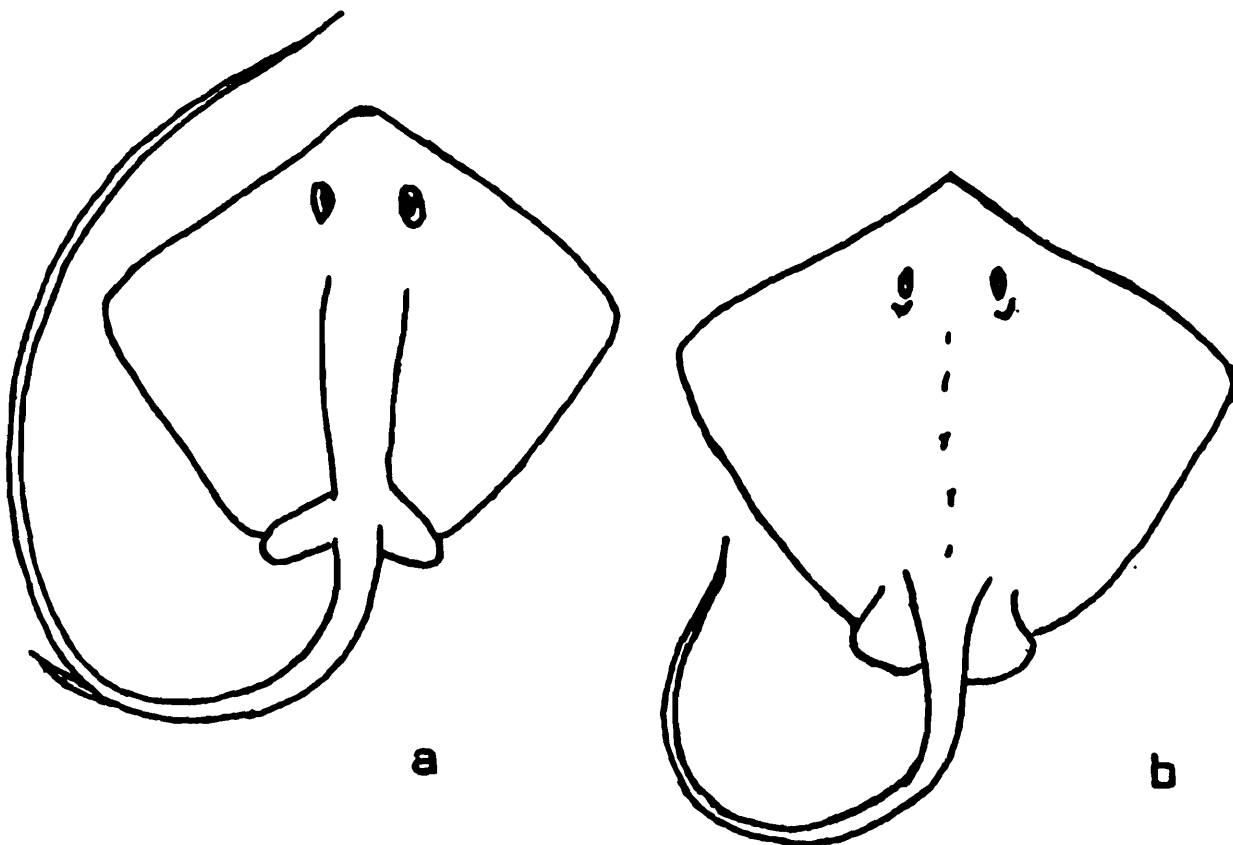


Fig. 15a, b Dasyatidae

- 7a Body symmetrical; eyes on either side of head 8
- 7b Body asymmetrical; eyes on one side of head. (Order : Pleuronectiformes) 101

- 8a
- No spines in the fins; adipose dorsal present; no barbels around mouth (Order : Aulopiformes)
.....SYNODONTIDAE

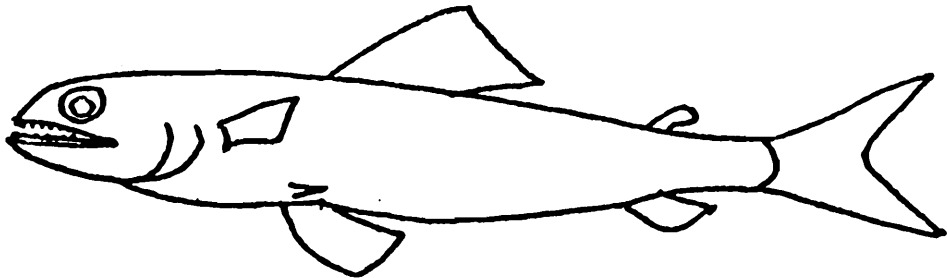


Fig. 16 Synodontidae

- 8b
- Fins with spines or absent; adipose dorsal absent or present; barbels around mouth present or absent.....9
- 9a
- No spines in fins 10
- 9b
- Spines present in all fins or in some fins or rarely absent 25
- 10a
- Body elongate, snake-like; ventral fins absent (Order : Anguilliformes) 11
- 10b
- Body shape not as in 10a; ventral fins present 14
- 11a
- Minute embeded scales on body ANGUILLIDAE

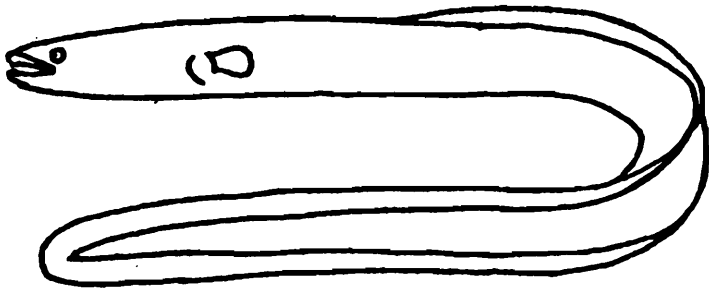


Fig. 17 Anguillidae

- 11b
- No scales on body 12
- 12a
- Dorsal and anal fins not reaching tip of tail; caudal fin absent.....OPHICHTHIDAE



Fig. 18 Ophichthidae

- 12b Dorsal and anal fins confluent with caudal fin 13
- 13a Pectoral fins absent; posterior nostrils either a slit or tube **MURAENIDAE**

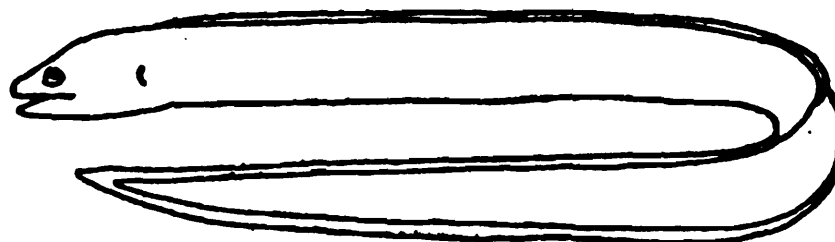


Fig. 19 Muraenidae

- 13b Pectoral fins absent; posterior nostril a simple pore **CONGRIDAE**



Fig. 20 Congridae

- 14a Paired fins with narrow auxillary scales; pelvic fins abdominal 15
- 14b Paired fins without auxillary scales; pelvic fins not abdominal 20
- 15a Lateral line present 16
- 15b Lateral line absent (Order : Clupeiformes) 17
- 16a No teeth in mouth; pectoral fin base horizontal (Order : Gonorhynchiformes) ... **CHANIDAE**

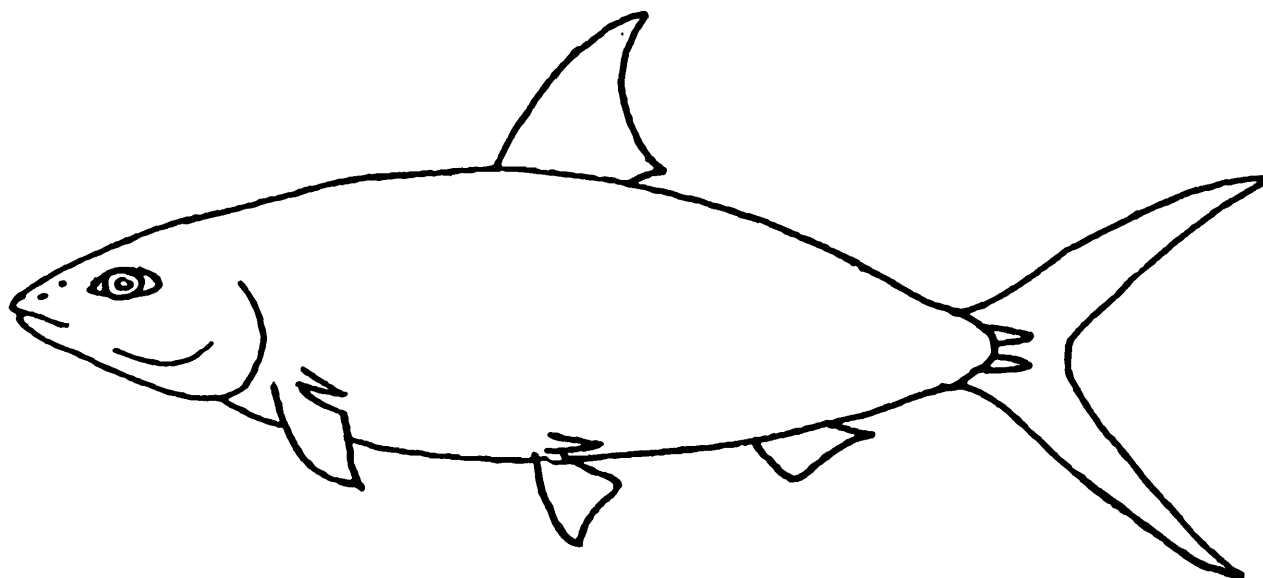


Fig. 21 Chanidae

- 16b Fine teeth on jaws and palate; pectoral fin base not horizontal (Order : Elopiformes) 19
- 17a Jaws with canines; dorsal fin origin over anal fin origin, well behind mid point of body
.....CHIROCENTRIDAE

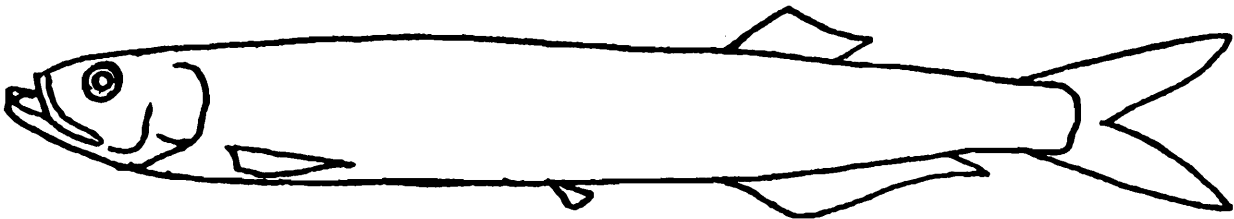


Fig. 22 Chirocentridae

- 17b Teeth minute or absent; dorsal fin origin well in front of anal fin and in front of mid point of body 18
- 18a Snout projecting in front of lower jaw; maxilla reaching beyond posterior margin of eye.....
.....ENGRAULIDIDAE

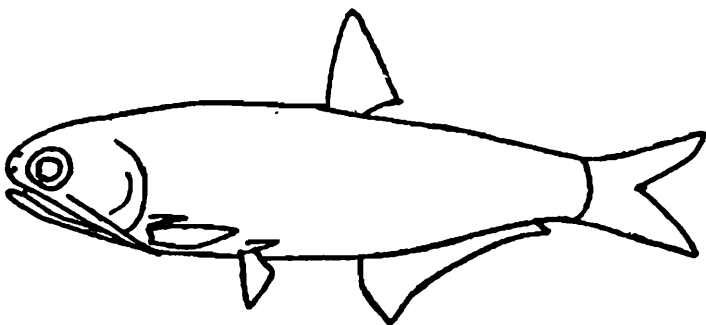


Fig. 23 Engraulididae

- 18b Snout not projecting; maxilla not reaching posterior margin of eye CLUPEIDAE

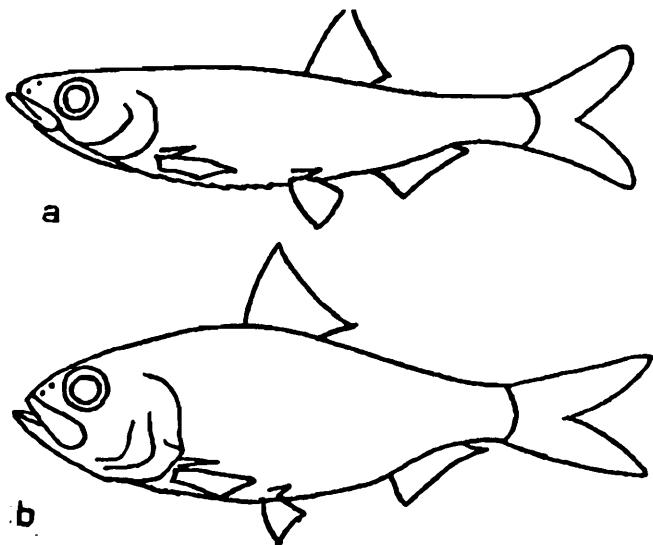


Fig. 24 a, b Clupeidae

- 19a Snout and upper jaw not projecting; median gular bone between dentaries present; dorsal fin base much less than anal fin base MEGALOPIDAE

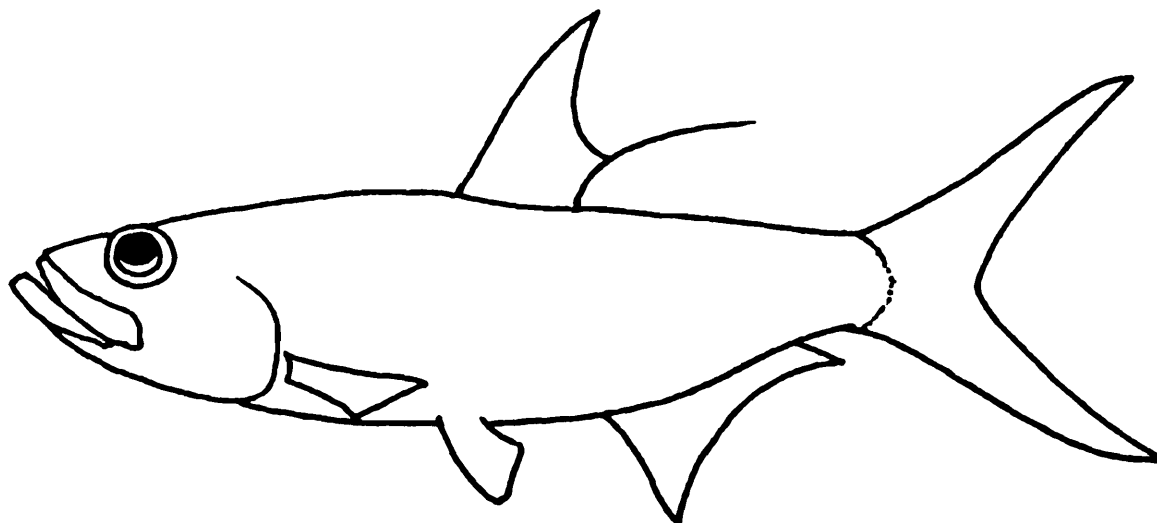


Fig. 25 Megalopidae

- 19b Snout and upper jaw projecting; no median gular bone; dorsal fin base longer than anal fin base ALBULIDAE

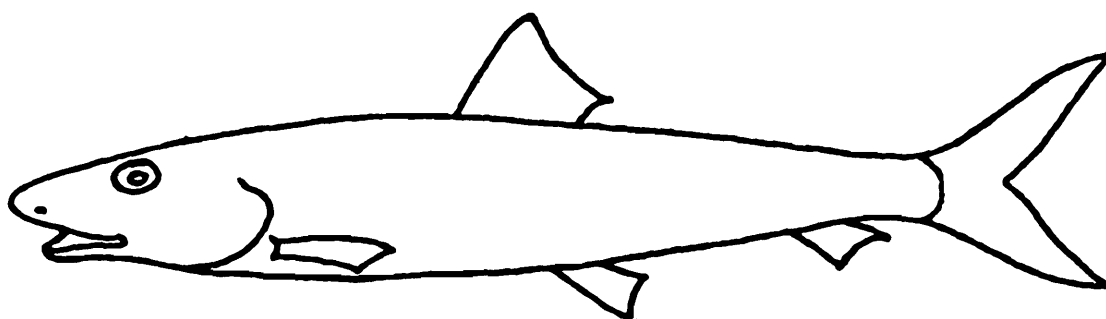


Fig. 26 Albulidae

- 20a Dorsal and anal fins low with long bases, confluent with caudal; pectoral fins with 1 or 2 rays or absent; lateral line absent (Order : Ophidiiformes) OPHIDIIDAE

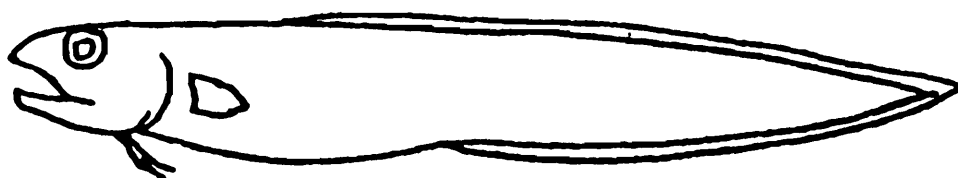


Fig. 27 Ophidiidae

- 20b Dorsal and anal fins relatively high with short bases; not confluent with caudal; pectoral fins well developed with 5 or more rays; lateral line present 21

- 21a Lateral line running along the ventral edge of the body; lower jaw elongate or not or both jaws elongate (Order : Cyprinodontiformes) 22
- 21b Lateral line running along the mid-lateral side of the body; jaws not elongated (Order : Cypriniformes) CYPRINIDAE

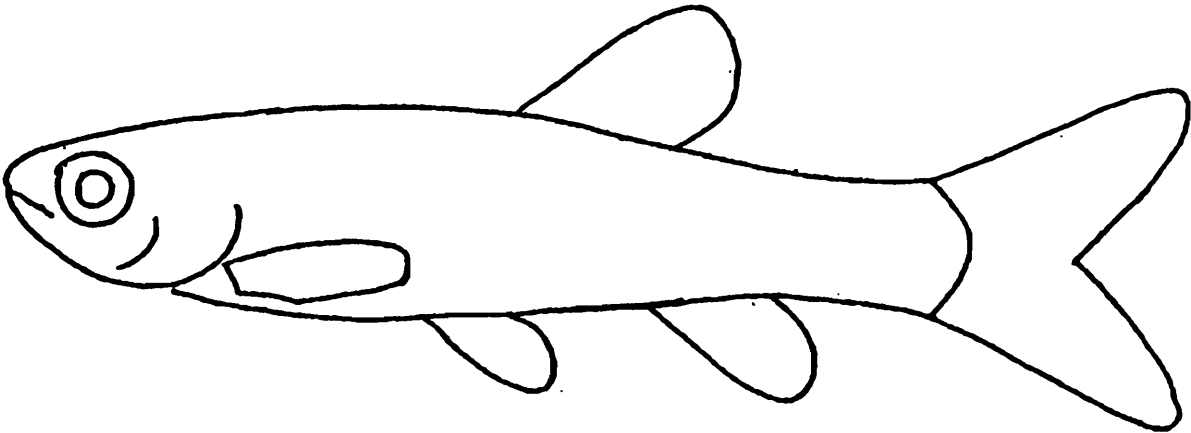


Fig. 28 Cyprinidae

- 22a Nasal opening paired; lateral line on head not on body; ventral bases close together APLOCHEILIDAE

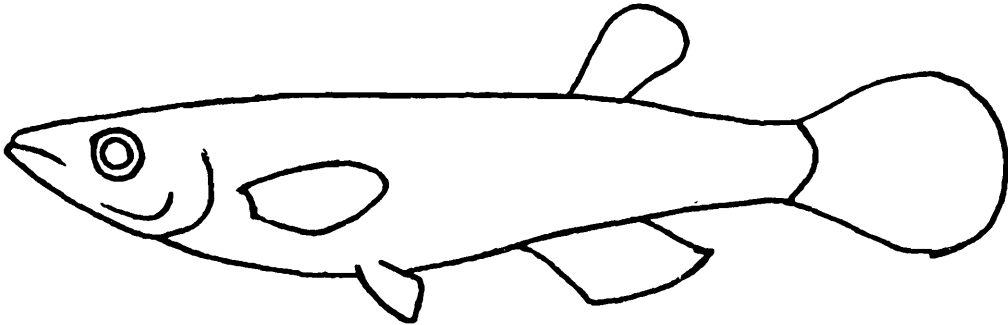


Fig. 29 Aplocheilidae

- 22b Nasal opening single; lateral line low on body; ventral fin bases normal 23
- 23a Both jaws elongate; paired fins not enlarged; rostral bones joined by sutures BELONIDAE

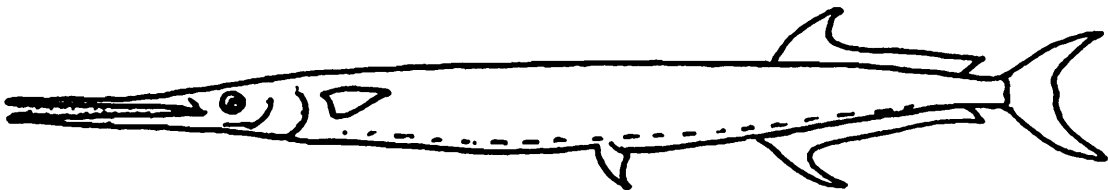


Fig. 30 Belonidae

- 23b Lower jaw elongated or not; pectoral and ventral fins often enlarged; rostral bones separated 24

- 24a Lower jaw elongated, upper jaw triangular; pectoral fins short.....**HEMIRAMPHIDAE**

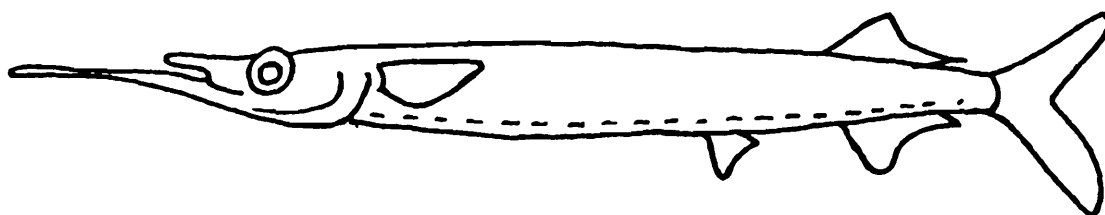


Fig. 31 Hemiramphidae

- 24b Jaws not elongated or projecting; pectoral fins very long, longer than head
.....**EXOCOETIDAE**

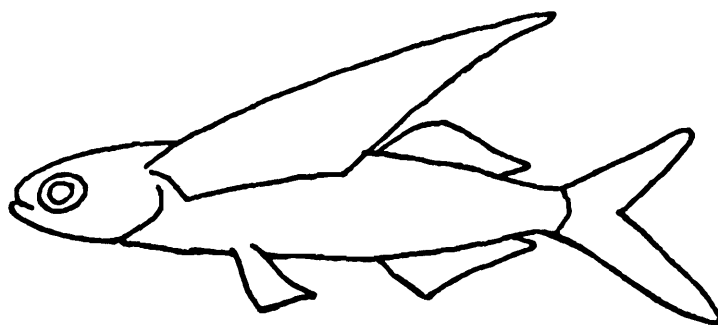


Fig. 32 Exocoetidae

- 25a Head and body completely or partly covered with bony plates.....26
25b Head and body not covered with bony plates, head bones may be armed with spines or ridges
.....31
26a Mouth at the end of a long tubular snout (Order : Syngnathyformes).....27
26b Snout not tubular and mouth normal in position 30
27a Body naked; minute teeth present; lateral line present; caudal fin forked
.....**FISTULARIIDAE**

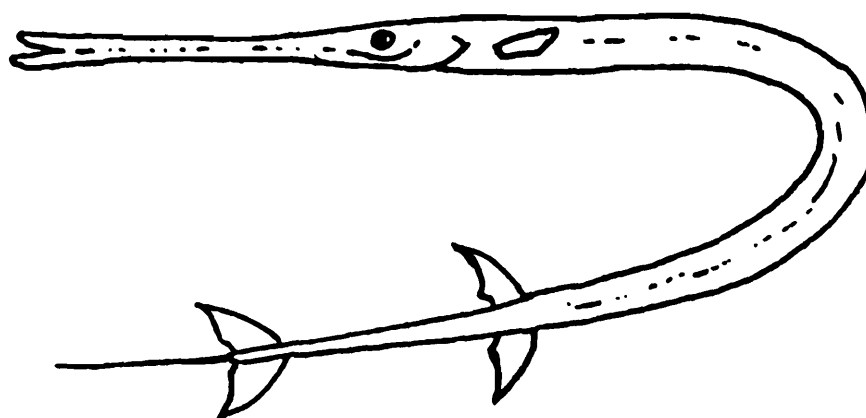


Fig. 33 Fistulariidae

- 27b Body covered with dermal plates; no teeth; no lateral line; caudal fin rounded or lanceolate 28
- 28a Ventral fins absent; spinous dorsal absent; body rounded and encased in a series of bony rings SYNGNATHIDAE

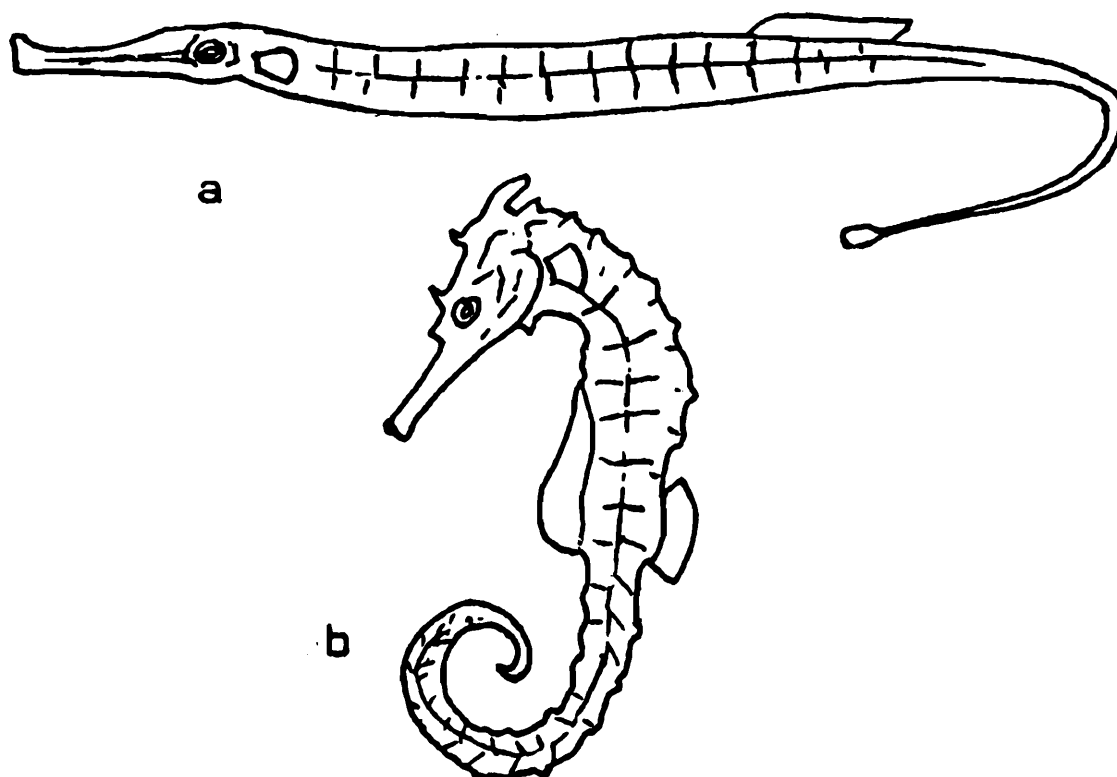


Fig. 34a, b Syngnathidae

- 28b Ventral fins present; spinous dorsal present; body compressed and encased in bony plates ... 29
- 29a Body covered with smooth, stiff and transparent armour with a sharp ventral edge; ventral fins small; dorsal and caudal fins deflected to ventral edge CENTRISCIDAE

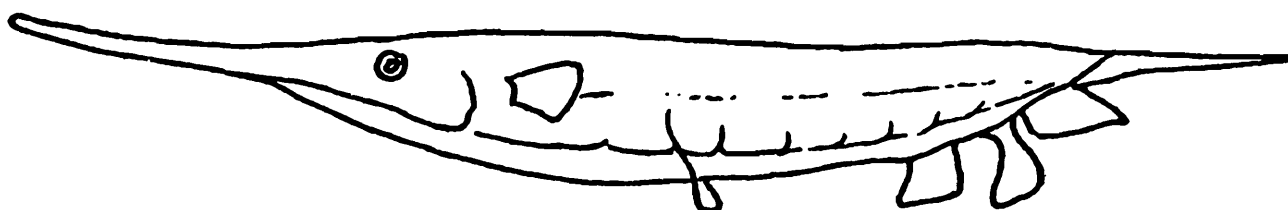


Fig. 35 Centriscidae

- 29b Body covered with segmented bony plates, those along sides of tail with short spines and ridges; ventral fins enlarged; dorsal and caudal fins in usual position..... SOLENOSTOMIDAE

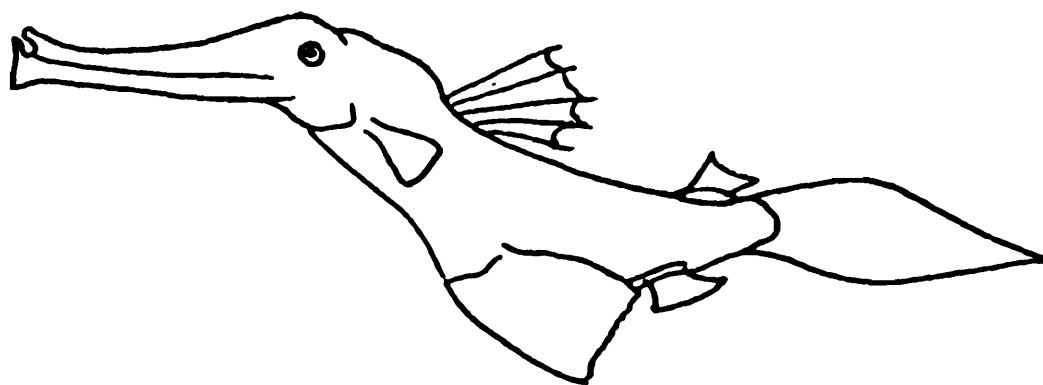


Fig. 36 Solenostomidae

- 30a Body and tail armed with bony rings; large bony rostrum projecting over the mouth; no enlarged preopercular spine; pectoral fins wing-like, but not reaching caudal peduncle; single dorsal fin; ventral fin abdominal with slender spine and 1-3 rays (Order : Pegasiformes) PEGASIDAE

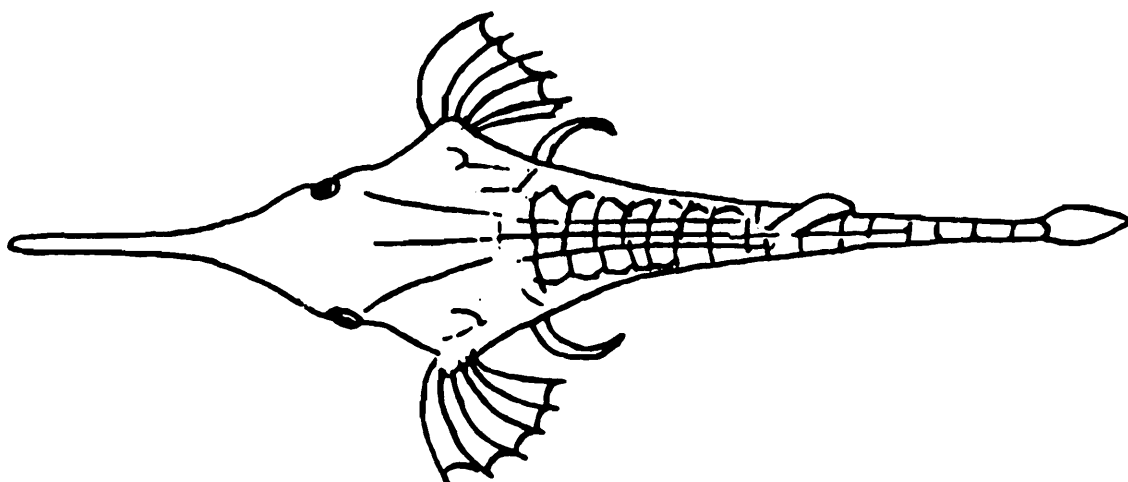


Fig. 37 Pegasidae

- 30b Body not covered with bony plates and rings; no rostrum over the mouth; preopercular spine very long; pectoral fins wing-like, reaching caudal peduncle; two dorsal fins; ventral fin thoracic (Order : Dactylopteriformes) DACTYLOPTERIDAE

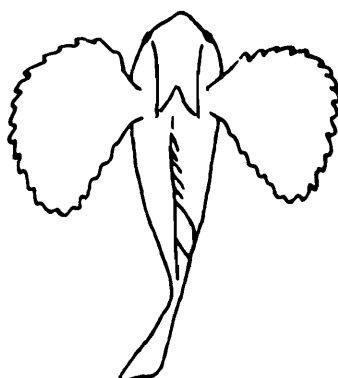


Fig. 38 Dactylopteridae

- 31a Head bones grooved and/or strongly ridged and spined 32
- 31b Head bones not grooved or ridged except opercular bones 36
- 32a No mucous canals on head; prominent spiny projections on head; a bony ridge on cheek; scales ctenoid or body naked, fully or partially scaled or covered with villi; ventral fins with one spine and 2-5 rays; mouth not protrusible (Order : Scorpaeniformes) 33
- 32b Well developed mucous canals on head; no spiny projections on head; no ridge on cheek; body scaled; scales strongly ctenoid or serrated; ventral fins with or without spine and 3-13 rays; mouth usually protrusible (Order : Beryciformes).....HOLOCENTRIDAE

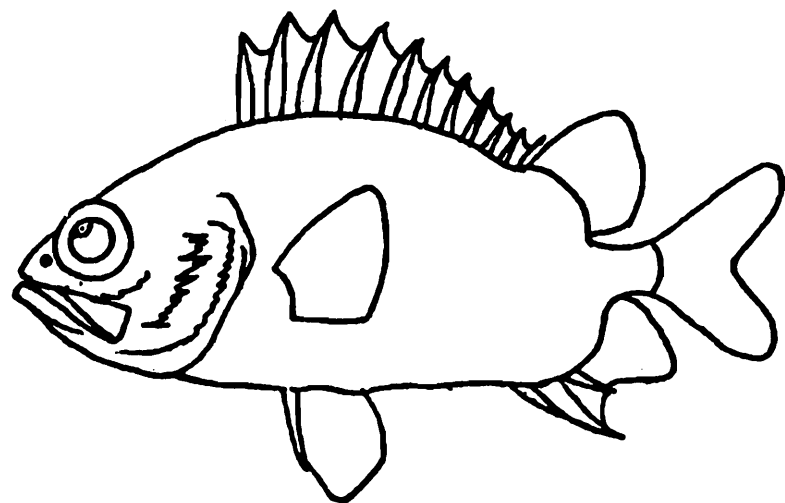


Fig. 39 Holocentridae

- 33a Body oval shaped; ventral fins rudimentary CARACANTHIDAE

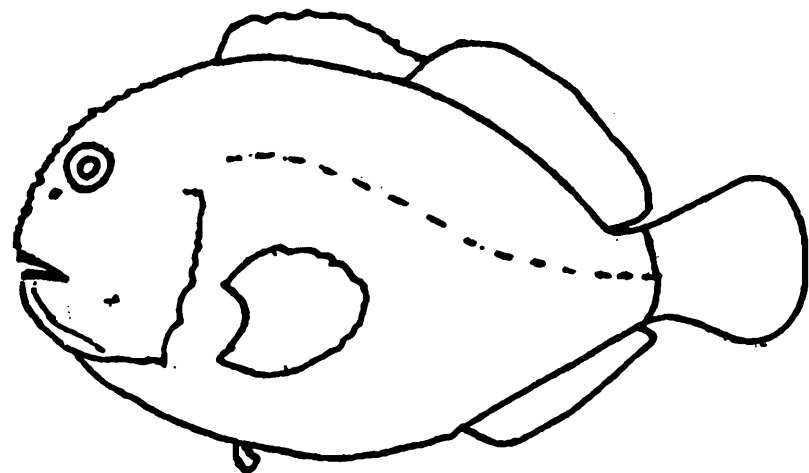


Fig. 40 Caracanthidae

- 33b Body oblong or elongate; ventral fins moderate to large 34

- 34a Two dorsal fins; head strongly flattened; ventral fins posterior to pectoral fins; no anal fin spines PLATYCEPHALIDAE

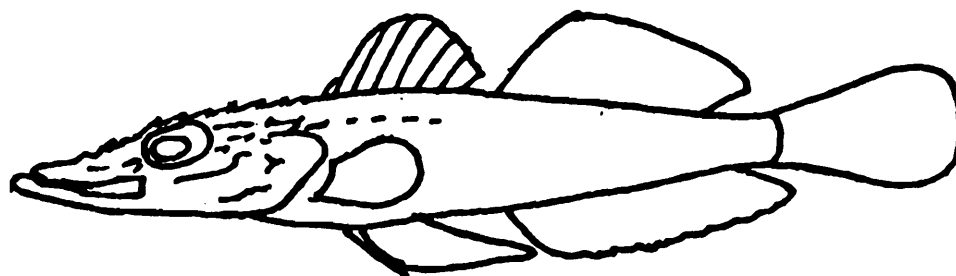


Fig. 41 Platycephalidae

- 34b Single dorsal fin; head not strongly flattened; ventral fins almost below pectoral fin base; anal fin with spines 35

- 35a No free pectoral rays; body covered with warts; scales not apparent and overlapping, gill membranes united with isthmus.....SYNANCEIIDAE

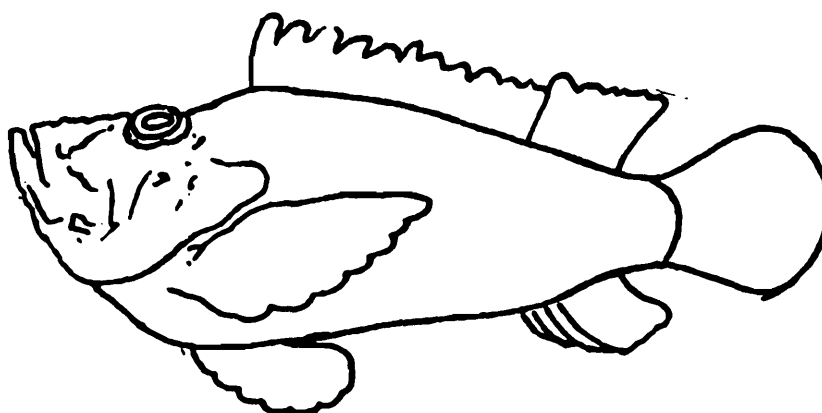


Fig. 42 Synanceiidae

- 35b Lower 1-3 pectoral rays free or united; no warts on body; scales apparent; gill membranes united with isthmus SCORPAENIDAE

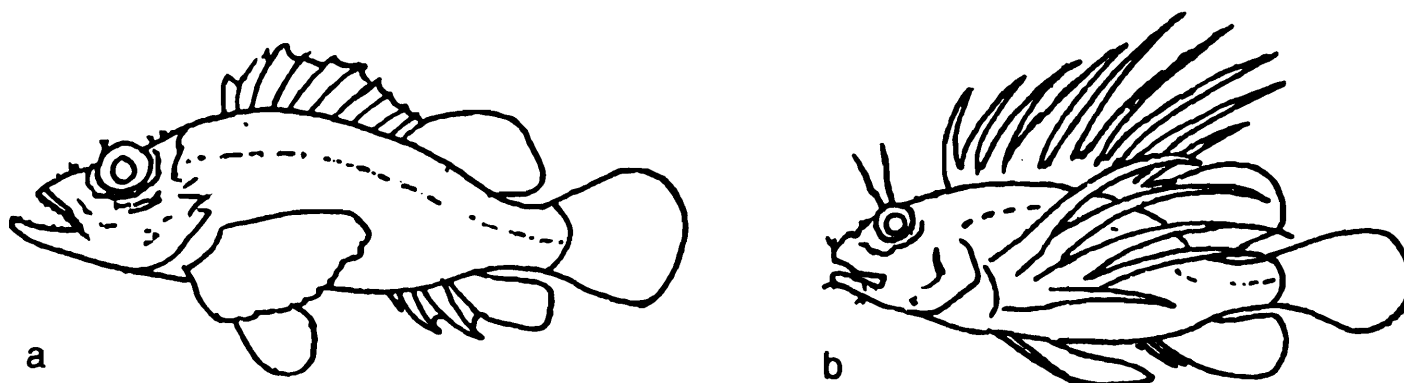


Fig. 43 a, b. Scorpaenidae

- 36a Anterior dorsal spines modified to a movable ‘illicium’ with finger or filaments or bulbs called ‘esca’; pectoral fin base elongate and leg-like (Order : Lophiiformes).....
.....ANTENNARIIDAE

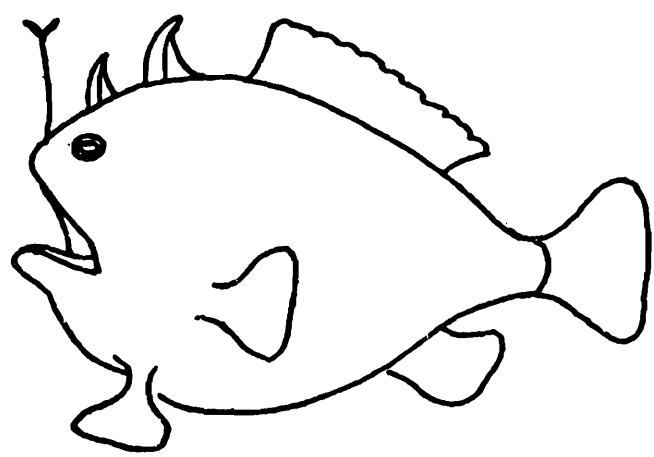


Fig. 44 Antennariidae

- 36b Anterior dorsal spines not as in 36a, spines strong or sometimes filamentous; pectoral fin base not elongate or leg-like 37
- 37a Three or four pairs of barbels around the mouth; adipose dorsal present or absent; 1st dorsal and pectoral fin with strong serrated spine (Order : Siluriformes) 38
- 37b No barbels, if present, only single or a pair under chin; no adipose dorsal 40
- 38a Two dorsal fins; 1st dorsal and pectoral fins with serrate spine; anal fin confluent with caudal PLOTOSIDAE

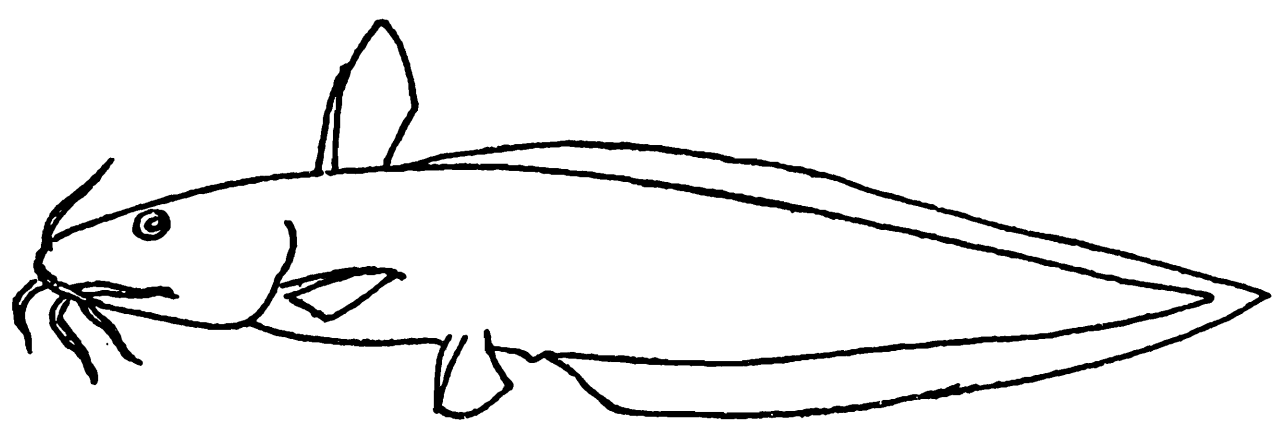


Fig. 45 Plotosidae

- 38b Single dorsal fin; dorsal fin without spine, pectoral fin with strong spine; anal fin not confluent with caudal 39

- 39a Dorsal fin base very long, with more than 30 rays CLARIIDAE

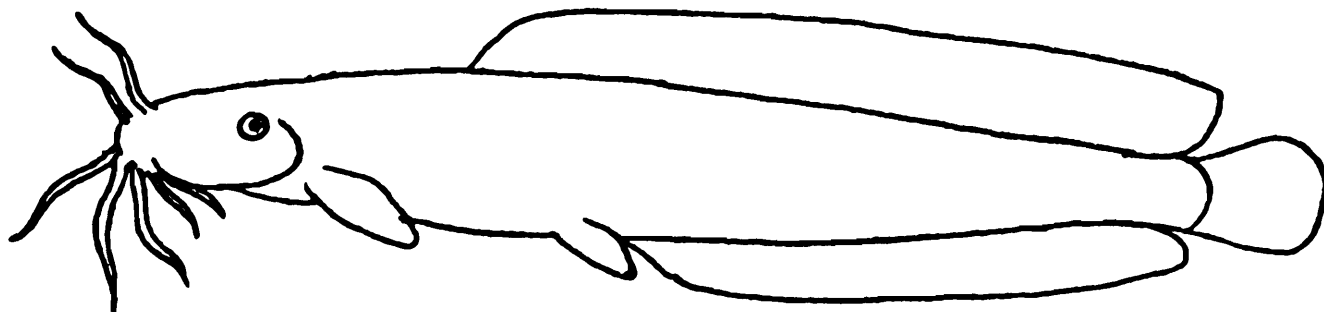


Fig. 46 Clariidae

- 39b Dorsal fin base short with 3-7 rays HETEROPNEUSTIDAE

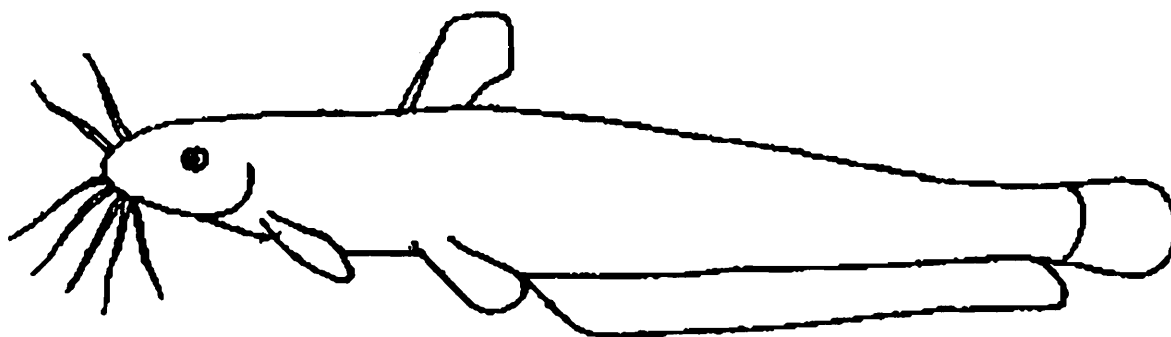


Fig. 47 Heteropneustidae

- 40a Gill opening restricted to lateral slits; scales modified as spines, shields or plates (Order : Tetraodontiformes) 41
- 40b Gill openings not as in 40a, covered with gill cover; scales ctenoid or cycloid 46
- 41a Teeth fused to one another and with jaw to form dental plates; dentaries and premaxillae often fused with their opposite members; skin beset with sharp spines 42
- 41b Teeth separate; dentaries and premaxillae not fused with their opposite members; skin without spines, except for small ones on caudal peduncle 43
- 42a A single undivided tooth plate in each jaw; skin with very large sharp spines
.....DIODONTIDAE

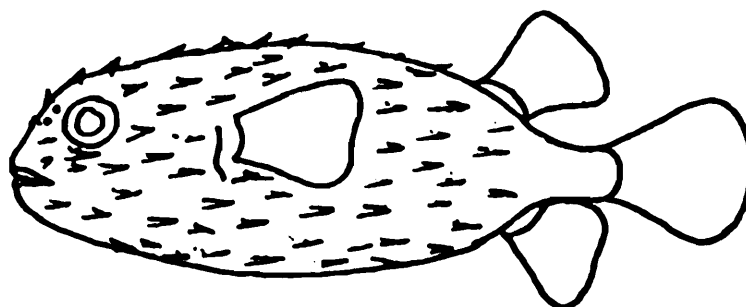


Fig. 48 Diodontidae

- 42b
- Tooth plates and jaws with a distinct median suture; skin naked or with small spines
- TETRAODONTIDAE

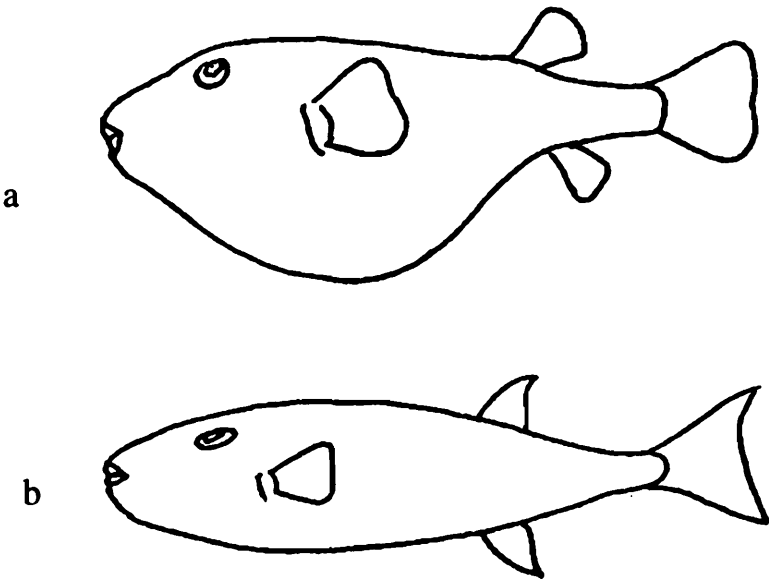


Fig. 49 a, b Tetraodontidae

- 43a
- Body oval to oblong and compressed; two dorsal fins; spinous dorsal fin with 2-3 spines ...
- 44
- 43b
- Body robust, encased in a hard bony case; single dorsal fin of only rays.....
- OSTRACIIDAE

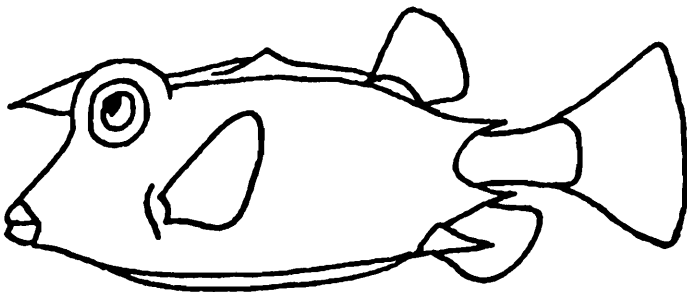


Fig. 50 Ostraciidae

- 44a
- Body covered with minute scales bearing slender microscopic spinules; second dorsal spine less than half the length of first spine; upper jaw with 6 and lower jaw with 4-6 teeth in outer row
- 45
- 44b
- Body covered with hard plate-like bony scales; second dorsal spine more than half the length of the first; upper and lower jaw each with 8 teeth in outer row
- BALISTIDAE

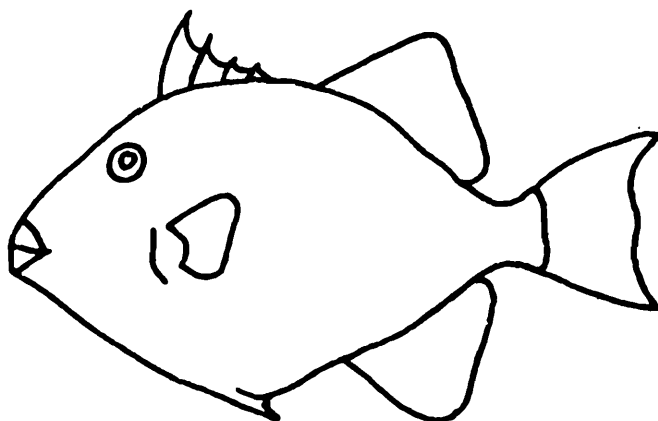


Fig. 51 Balistidae

- 45a Dorsal fin with two spines; ventral fin rudimentary; caudal fin rounded
MONACANTHIDAE

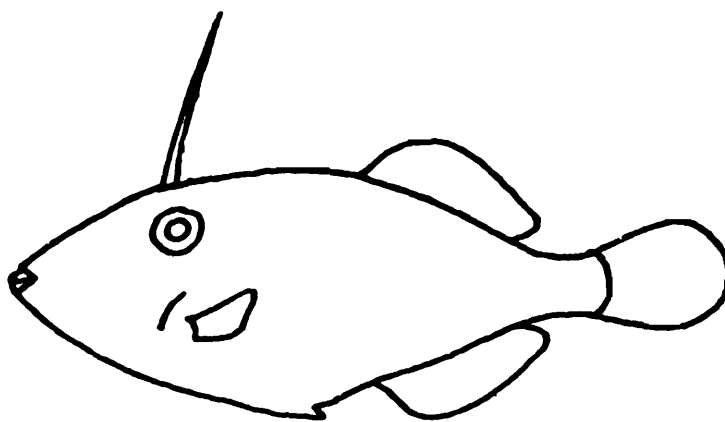


Fig. 52 Monacanthidae

- 45b Dorsal fin with 5 spines; ventral fin with large spine; caudal fin forked
TRIACANTHIDAE

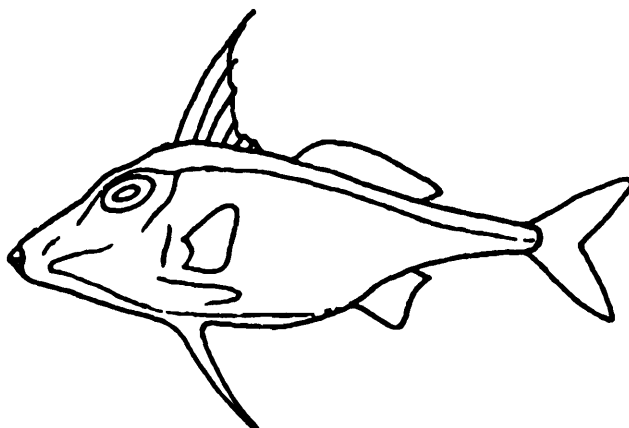


Fig. 53 Triacanthidae

- 46a Scales usually cycloid; fin spines absent or weak; principal caudal fin rays often 18 or 19..
.....47
- 46b Scales usually ctenoid or absent; fin spines absent or if present, spines are strong; principal
caudal fin rays 17 or fewer (Order : Perciformes) 48
- 47a Body scales with spinules; ventral fins reduced or absent, if present, inserted below or in front
of pectorals; lateral line present; trunk shorter than head, followed by long tail (Order :
Gadiformes) MACROURIDAE

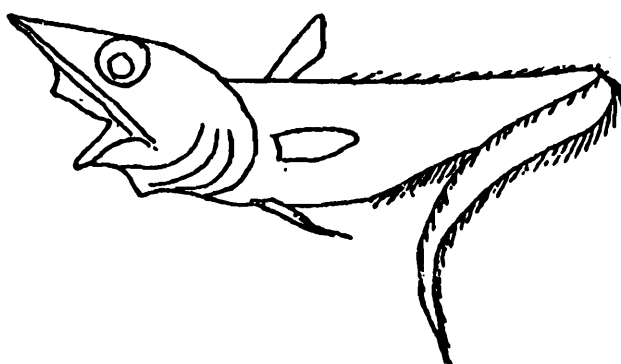


Fig. 54 Macrouridae

- 47b Body scales without spinules; ventral fins present, inserted far behind pectorals; lateral line
absent; trunk not shorter than head; tail not long (Order : Atheriniformes) ATHERINIDAE

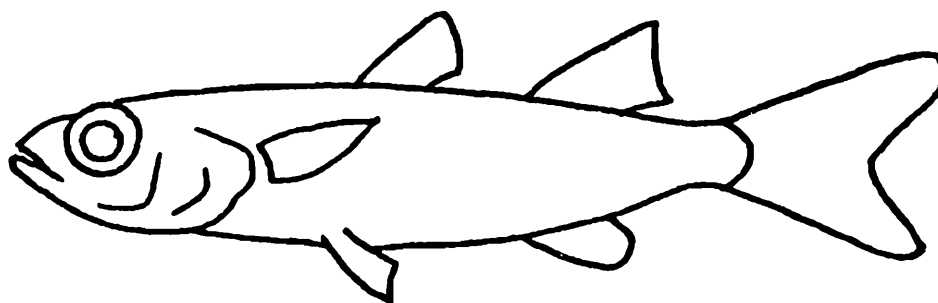


Fig. 55 Atherinidae

- 48a Pectoral fin with normal upper rays and lower 4 to 7 rays free and filamentous; dorsal fins two,
and widely separated POLYNEMIDAE

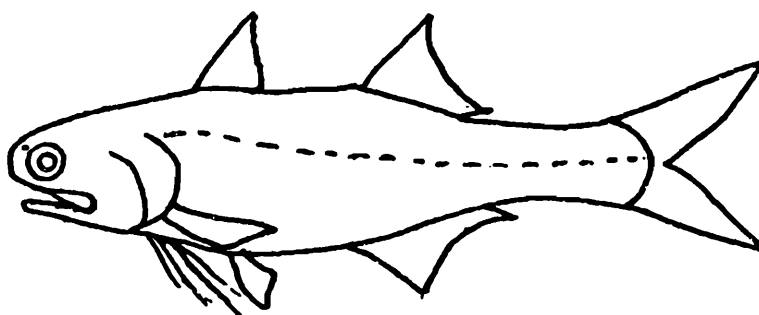


Fig. 56 Polynemidae

- 48b Pectoral fins normal, without free rays, lower rays sometimes separate; dorsal fin continuous or separated 49
- 49a Dorsal fins small, widely separated; ventrals sub-abdominal and markedly behind pectoral fin base 50
- 49b Dorsal fins with contiguous bases or notched or separated; ventral fins situated near base of pectorals 51
- 50a Lateral line well developed; strong canine teeth on jaws; dorsal with 5 spines.....
.....SPHYRAENIDAE

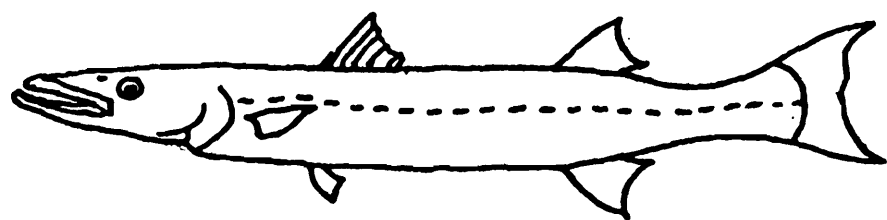


Fig. 57 Sphyraenidae

- 50b No lateral line; teeth small, hidden or absent; dorsal with 4 spines MUGILIDAE

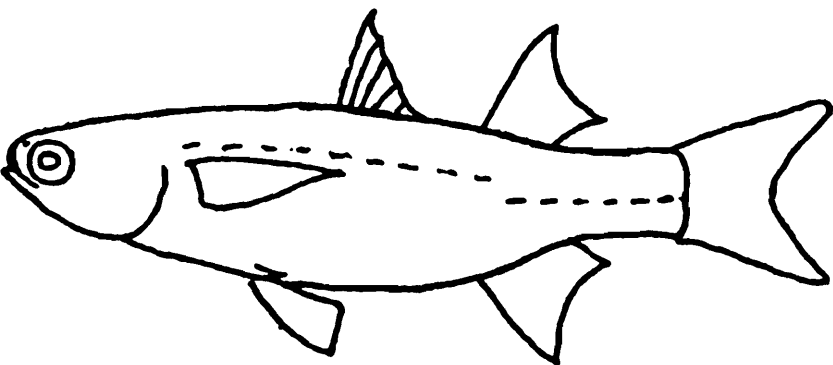


Fig. 58 Mugilidae

- 51a Premaxilla fixed 52
- 51b Maxillary bones not firmly attached to premaxilla and free to move forward 53
- 52a Ventral and caudal fins well developed; body spindle-shaped; keels present on caudal peduncle; two dorsal fins SCOMBRIDAE

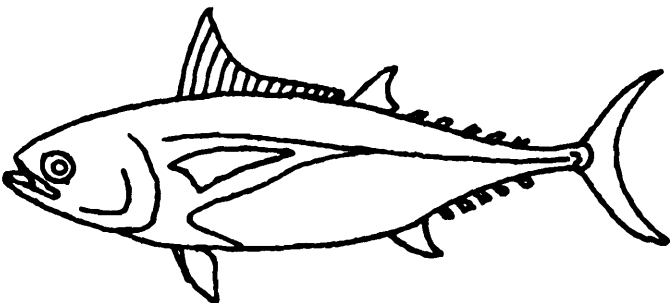


Fig. 59 Scombridae

- 52b
- Ventral and caudal fins absent or reduced; single dorsal fin; body ribbon-like
.....TRICHIURIDAE

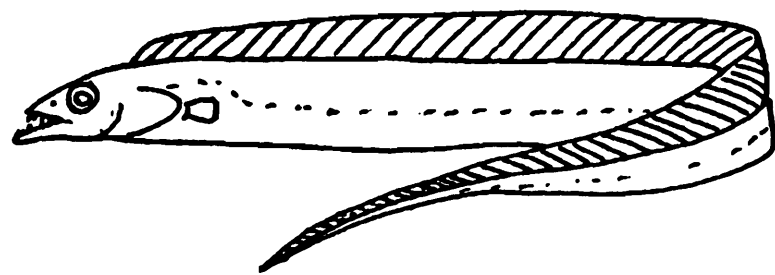


Fig. 60 Trichiuridae

- 53a
- Ventral fins with 2 strong spines and 3 rays; anal fin with 7 spines SIGANIDAE

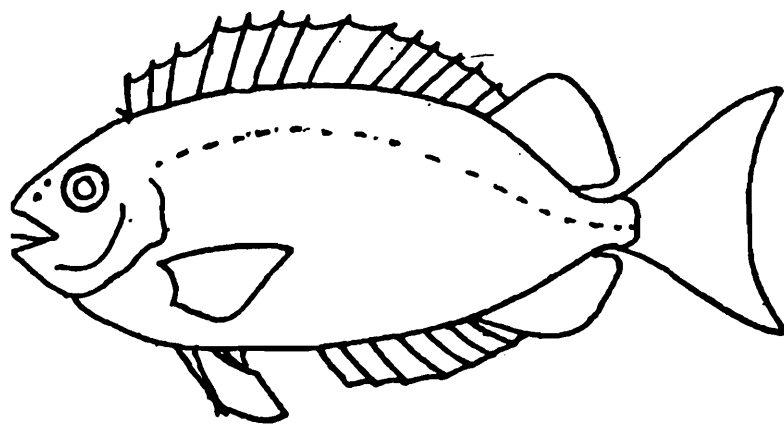


Fig. 61 Siganidae

- 53b
- Ventral fins normal with one spine or no spines 54
- 54a
- Small scalpel-like spine on side of caudal peduncle; body covered with small scales; body deeply compressed; caudal peduncle very narrow ACANTHURIDAE

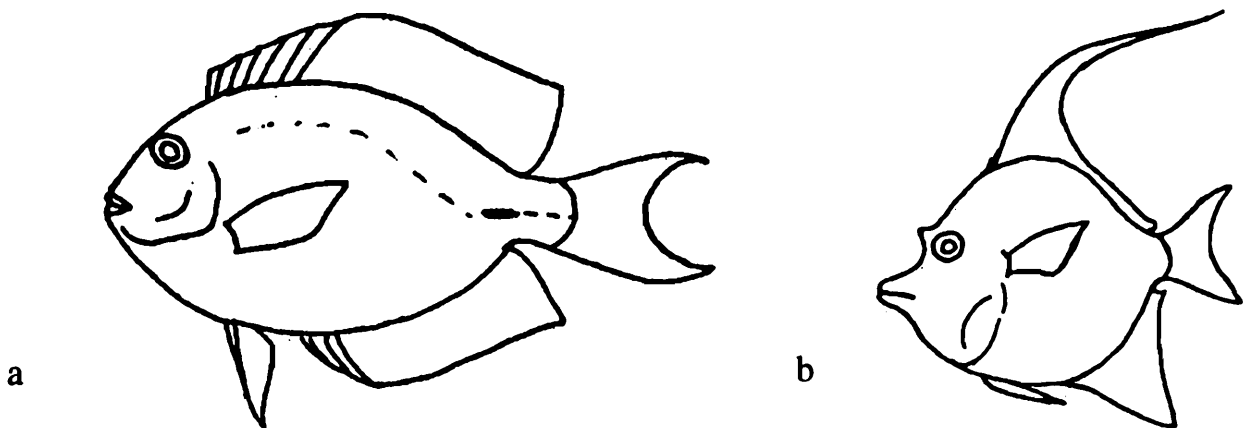


Fig. 62a, b Acanthuridae

- 54b Caudal peduncle unarmed; scales normal 55
- 55a Lower pectoral fin rays branched; no cirri on nostrils or on dorsal fin edge.....56
- 55b Lower 5-7 pectoral rays unbranched and thickened; hind nostrils with fringe of cirri and inter-spinous membrane near dorsal spines with cirri CIRRHITIDAE

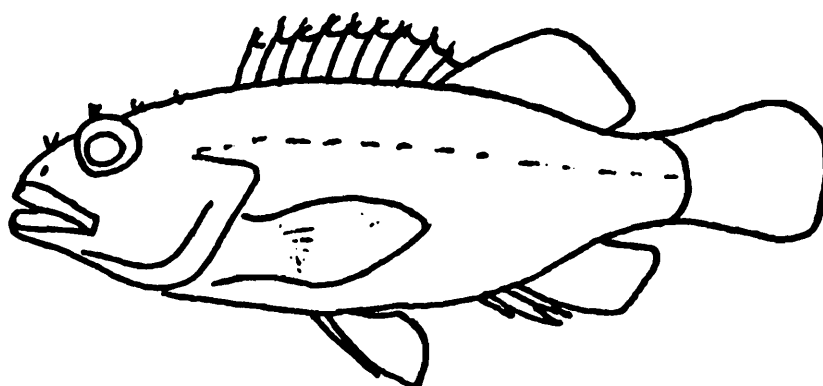


Fig. 63 Cirrhitidae

- 56a Single pair of nostrils; body deep and compressed; pre and sub-orbitals not attached to cheek POMACENTRIDAE

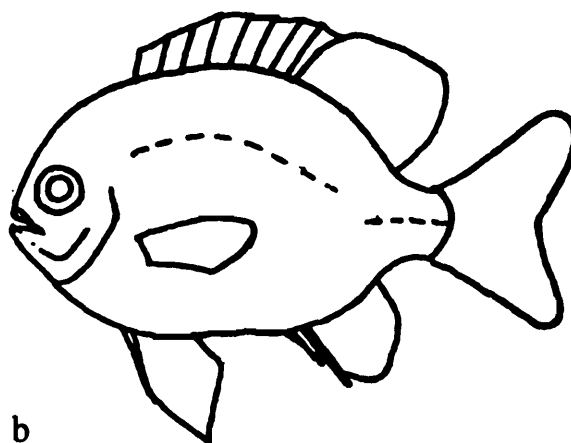
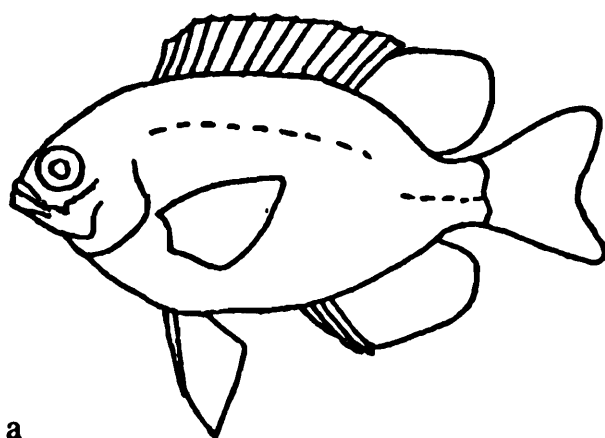


Fig. 64a, b Pomacentridae

- 56b Two pairs of nostrils; orbital bones attached to cheek.....57
- 57a Gills $3\frac{1}{2}$; lower pharyngeals fused into characteristic structure which bears strong molar teeth 58
- 57b Gills 4; lower pharyngeals not fused and not bearing molar teeth 59
- 58a Mouth protractile; teeth on jaws separate, projecting outward.....LABRIDAE

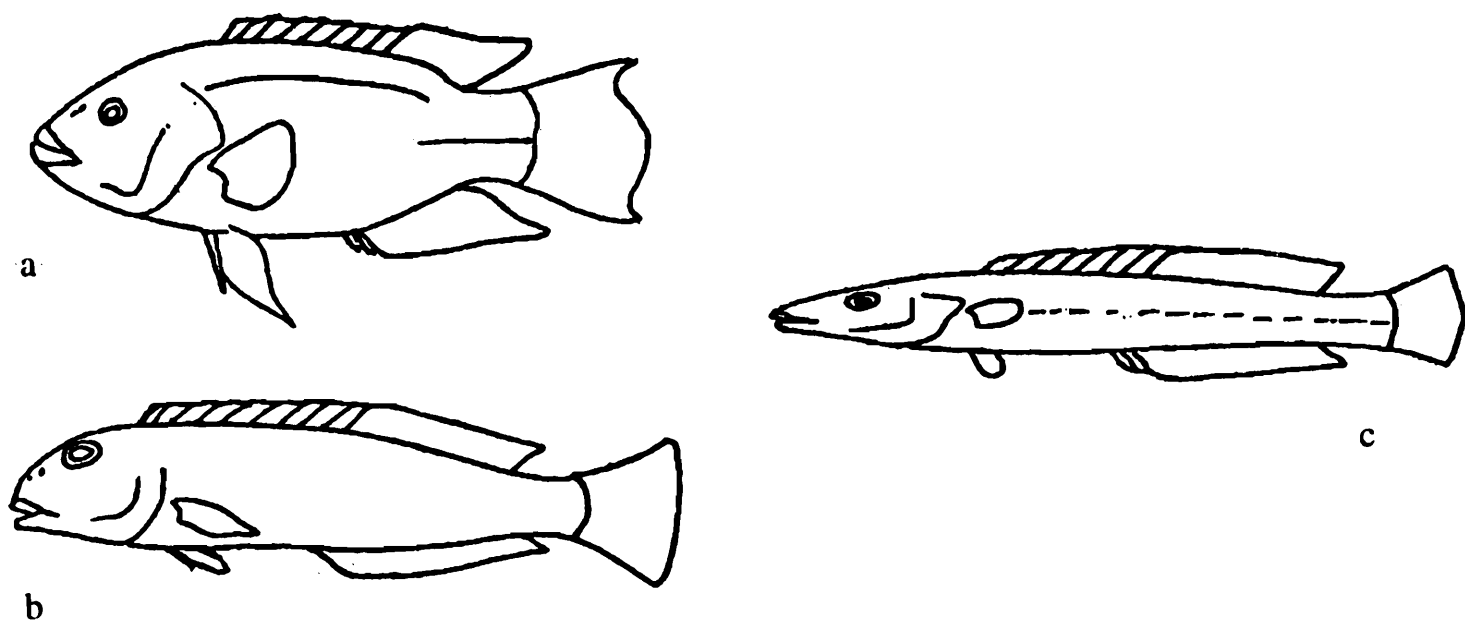


Fig. 65a, b, c Labridae

58b Mouth not protractile; teeth fused to form beak-like plates SCARIDAE

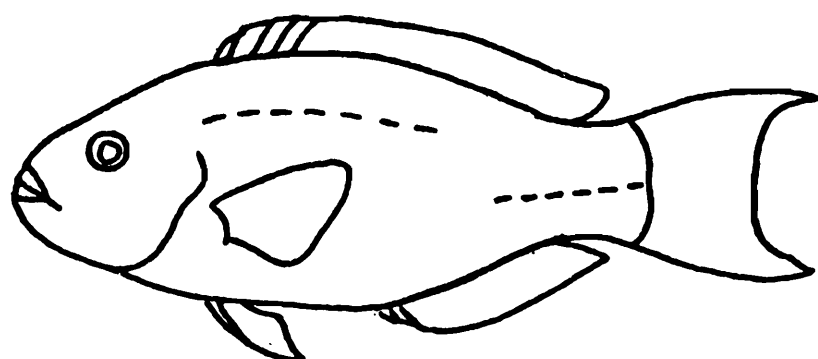


Fig. 66 Scaridae

59a Two barbels on chin; dorsals widely separated MULLIDAE

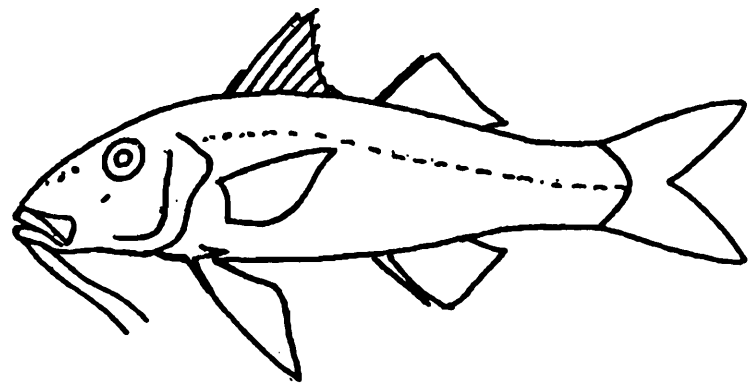


Fig. 67 Mullidae

- 59b No barbels on chin 60
- 60a Dorsal fin with 6-9 isolated spines, each depressible in groove; sides of body with two silvery stripes RACHYCENTRIDAE

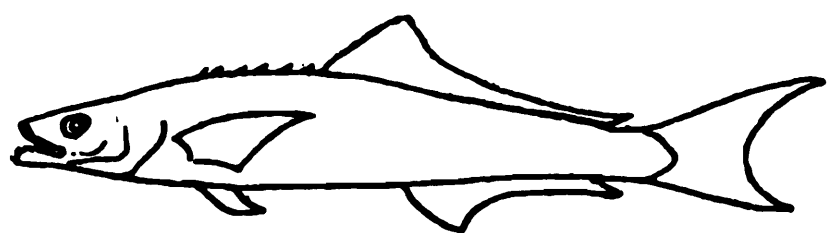


Fig. 68 Rachycentridae

- 60b No free spines in dorsal fin 61
- 61a Straight part of lateral line with scutes; first two spines of anal fin separate from rest of fin CARANGIDAE

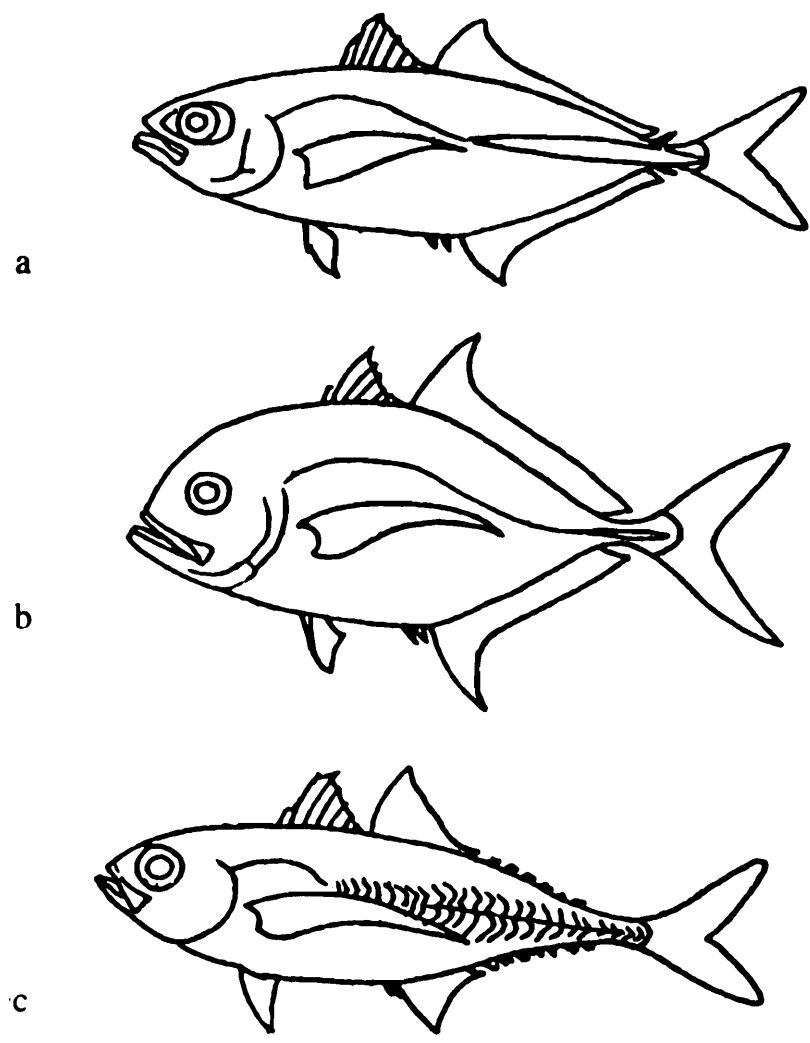


Fig. 69a, b, c Carangidae

- 61b
- No scutes on lateral line; anal spines not detached 62
- 62a
- Head flattened with laminated oval-shaped disc. ECHENEIDAE

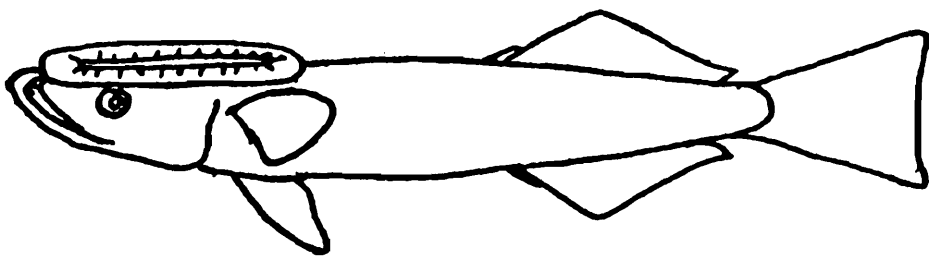


Fig. 70 Echineidae

- 62b
- No such disc on head 63
- 63a
- Anterior rays of soft dorsal and anal fins elongated and sickle-shape; ventral fins vestigial; body deep MONODACTYLIDAE

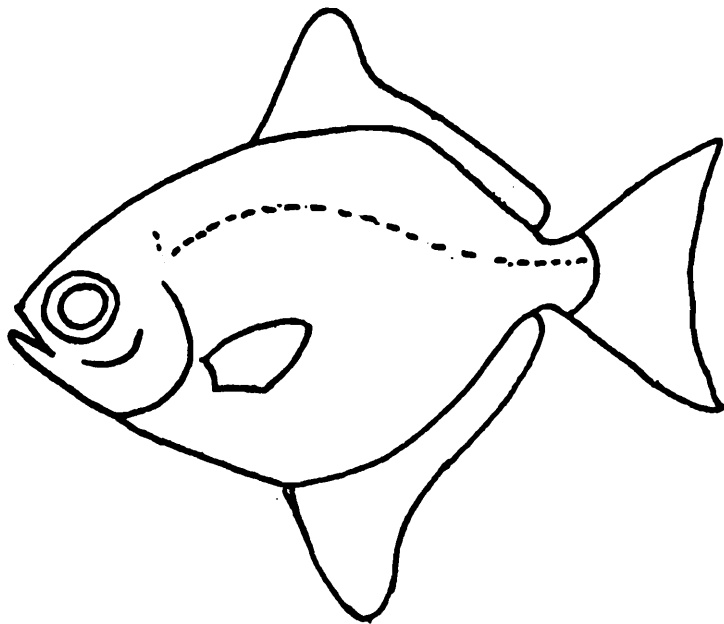


Fig. 71 Monodactylidae

- 63b
- Anterior rays of soft dorsal and anal not elongated; if elongate, not sickle-shaped. 64
- 64a
- Body very deep, depth more than half the total length; single dorsal fin 65
- 64b
- Body oblong or moderately deep; depth less than half the total length 68
- 65a
- No procumbent spine in dorsal, fin continuous; body thin and disc shaped; mouth with bristle-like teeth; body brilliantly coloured 66
- 65b
- Procumbent spine present in dorsal; spinous part distinct; mouth with minute tricuspid teeth 67

- 66a Scales smooth; no large spine at angle of preopercle; gill membranes free from isthmus or joined CHAETODONTIDAE

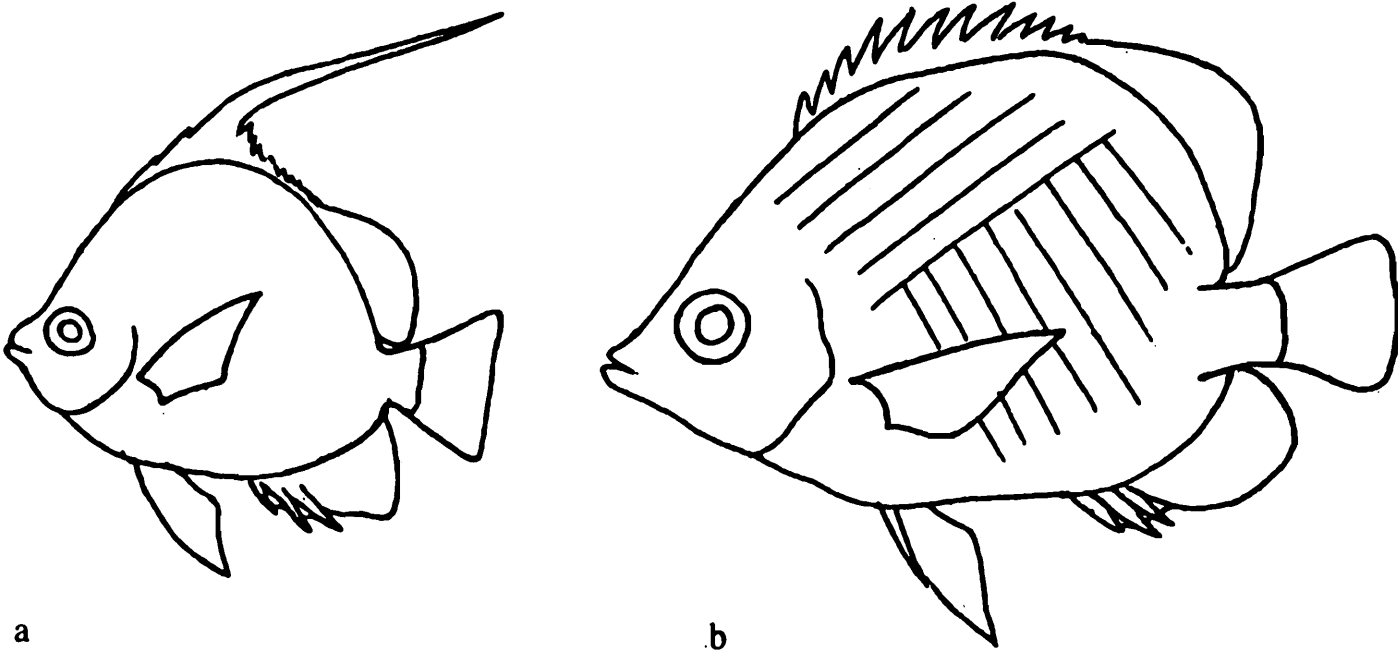


Fig. 72a, b Chaetodontidae

- 66b Scales with ridges ending in sharp points; gill membranes joined to isthmus POMACANTHIDAE

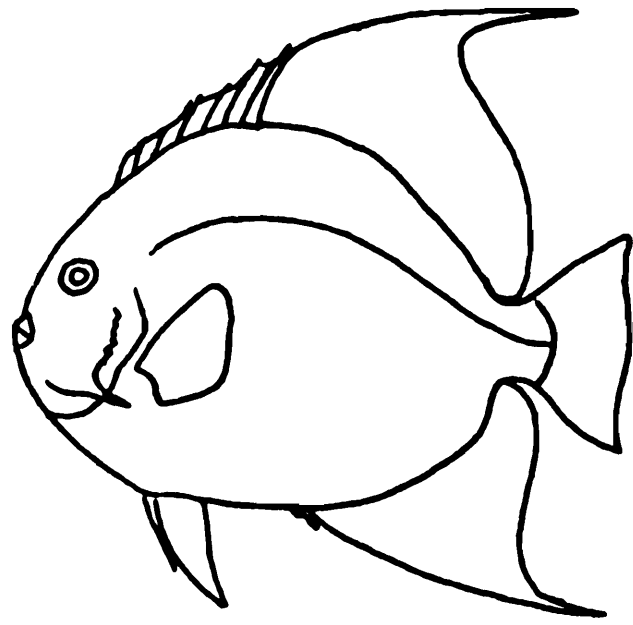


Fig. 73 Pomacanthidae

67a Anal fin with 3 spines; no pelvic axillary process EPHIPPIDIDAE

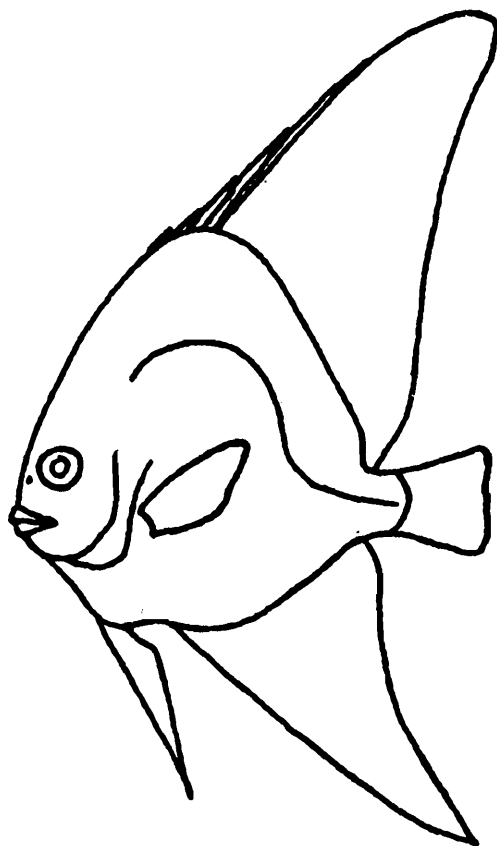


Fig. 74 Ehippididae

67b Anal fin with 4 spines; pelvic axillary process present SCATOPHAGIDAE

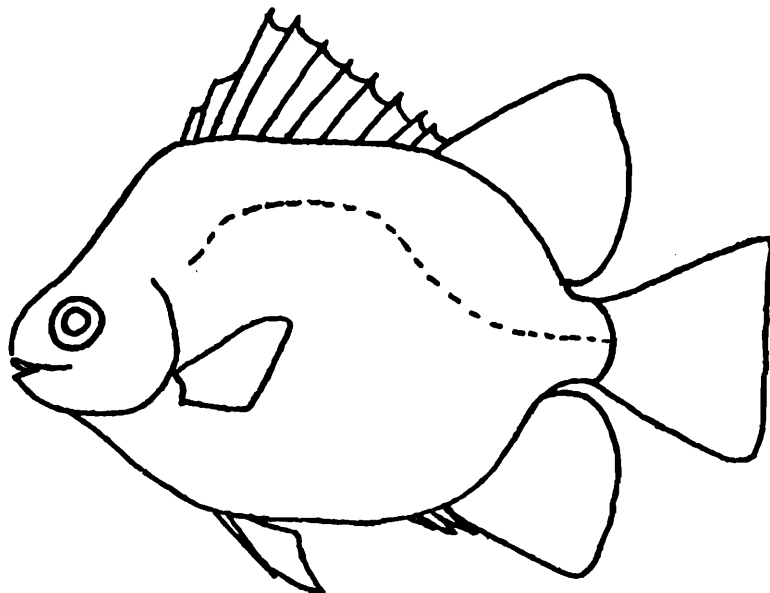


Fig. 75 Scatophagidae

- 68a Single dorsal fin; slightly notched or two separate dorsals; dorsal spines weak and flexible 69
- 68b Single or two dorsal fins with well developed spines.....73
- 69a Body deep, strongly compressed, depth greater than head length.....70
- 69b Body oblong or elongate; moderately compressed; depth about equal to or less than head length 72
- 70a Body disc-like; breast sharp; no spines in dorsal and anal fins; first two ventral rays prolonged**MENIDAE**
- 70b Fins with spines; ventral rays not prolonged.....71

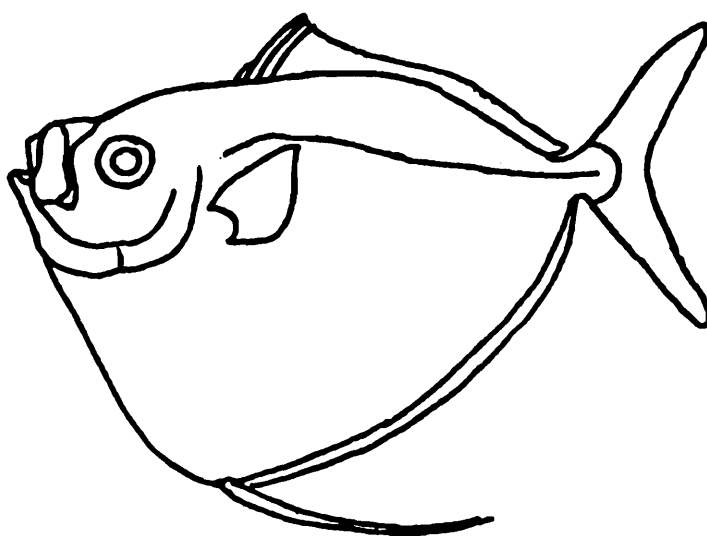


Fig. 76 Menidae

- 71a Dorsal fin long, its base equal to or longer than anal fin base; dorsal rays 30-60**BRAMIDAE**

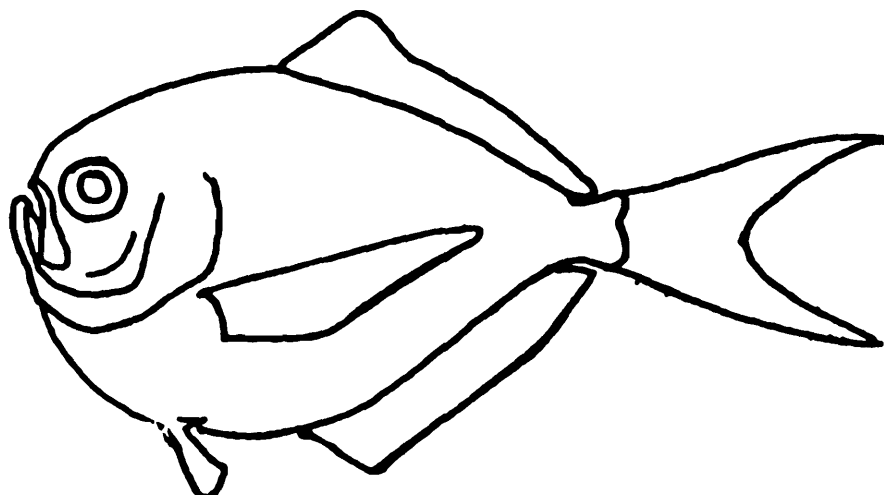


Fig. 77 Bramidae

- 71b
- Dorsal fin base short, its base shorter than anal fin base; dorsal rays below 12
.....PEMPHERIDAE

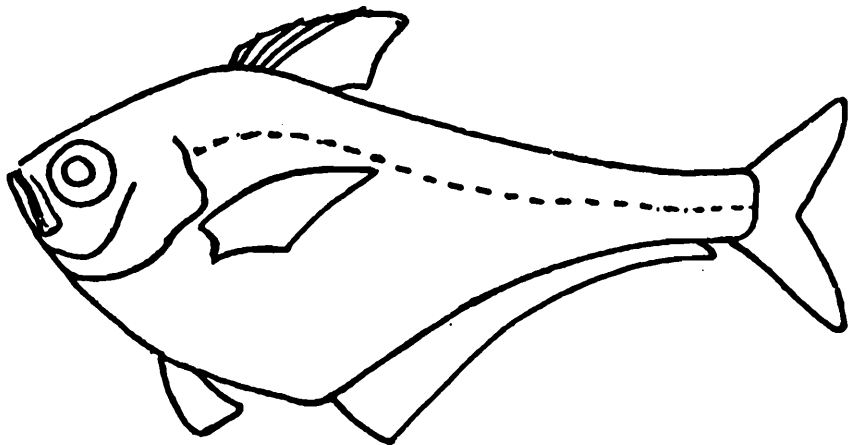


Fig. 78 Pempferidae

- 72a
- Dorsal spines 4-5; scales on body; preopercle with spine; no crest or cirri on head; stout spine on opercle MUGILOIDIDAE

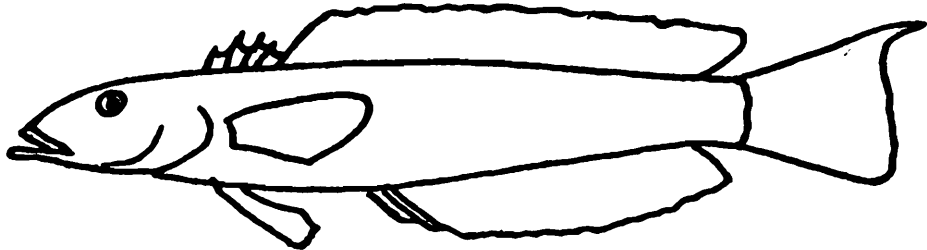


Fig. 79 Mugiloididae

- 72b
- Dorsal spines 7-17; no scales on body; cirri or crest on head; no spine on opercle
.....BLENNIIDAE

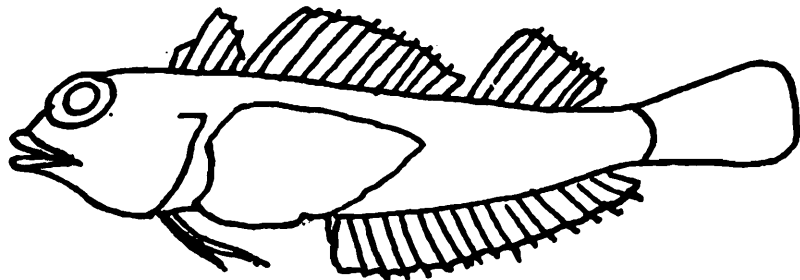


Fig. 80 Blenniidae

- 73a
- Lateral line interrupted or divided into upper and lower parts 74
- 73b
- Lateral line single, not divided 75

- 74a Dorsal with 1-3 spines, 21-37 rays, anal with 1-3 spines and 3-19 rays; ventral rays normal PSEUDOCROMIDAE

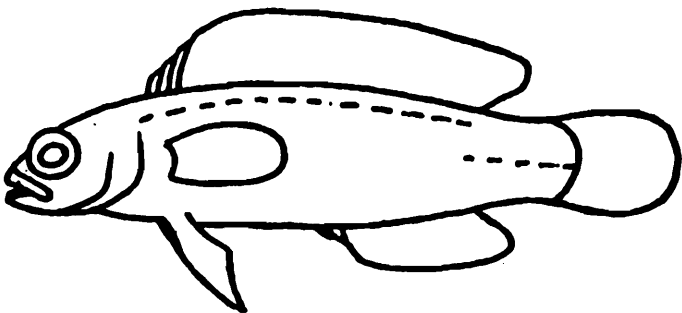


Fig. 81 Pseudochromidae

- 74b Dorsal with 10-13 spines and 6-10 rays; anal with 3 spines and 8-9 rays; first ventral ray elongated, thickened and bifurcate PLESIOPIDAE

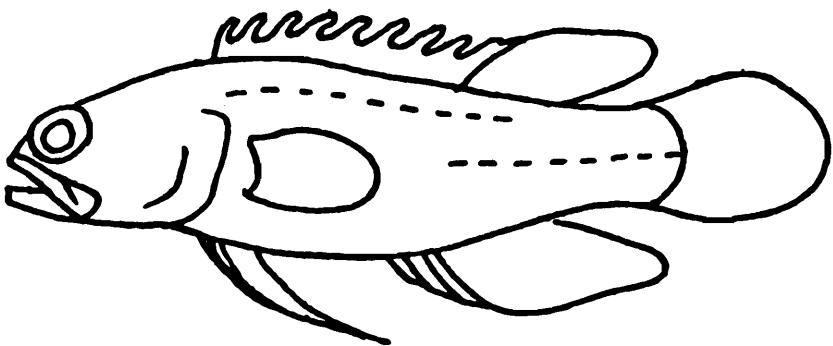


Fig. 82 Plesiopidae

- 75a Two dorsal fins, separate or close together but not joined by membrane 76
- 75b Single dorsal fin, deeply or slightly notched between spinous and soft parts 84
- 76a Scales on body present or absent; upper jaw protrusile; preopercle with stout spine; ventral fins jugular in position CALLIONYMIDAE

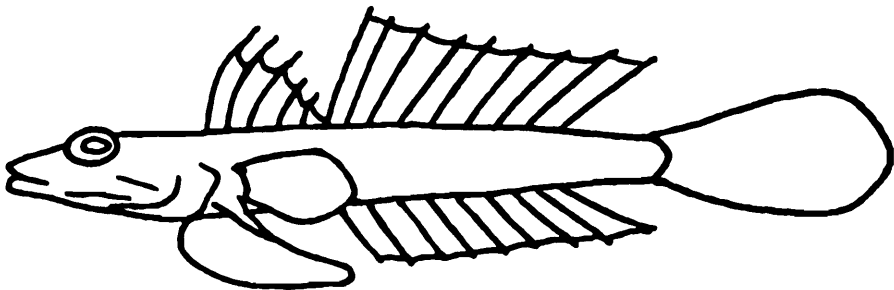


Fig. 83 Callionymidae

- 76b Scales on body; upper jaw not protrusile no preopercle spine; ventral fins below the level of pectorals 77

- 77a
- Anal fin base longer than 2nd dorsal base; mouth large, oblique, with two canines at front
.....LACTARIIDAE

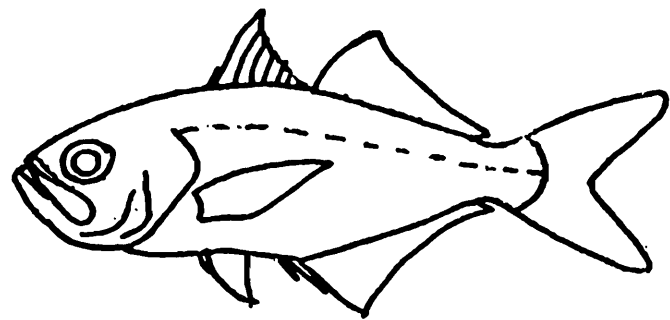


Fig. 84 Lactariidae

- 77b.
- Anal fin base as long as or shorter than 2nd dorsal base or longer.....78
- 78a
- Dorsal fin in 3 parts; ventral fin with one hidden spine and 2 rays TRIPTERYGIIDAE

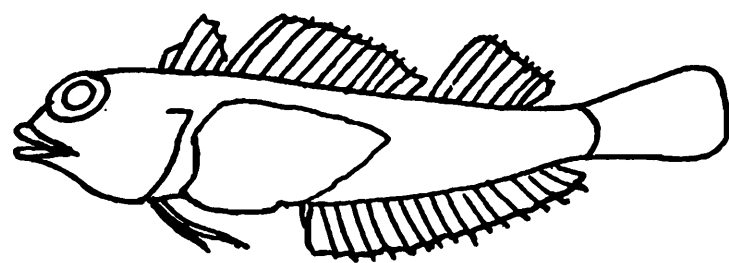


Fig. 85 Tripterygiidae

- 78b
- Dorsal fin in two parts; ventral with 1 or 2 spines and 4-5 rays 79
- 79a
- Anal fin with 2 spines; opercle with small spine 80
- 79b
- Anal fin with 1 or no spines; opercle without spine 81
- 80a
- 1st dorsal with 4-8 spines; anal with 8-18 rays APOGONIDAE

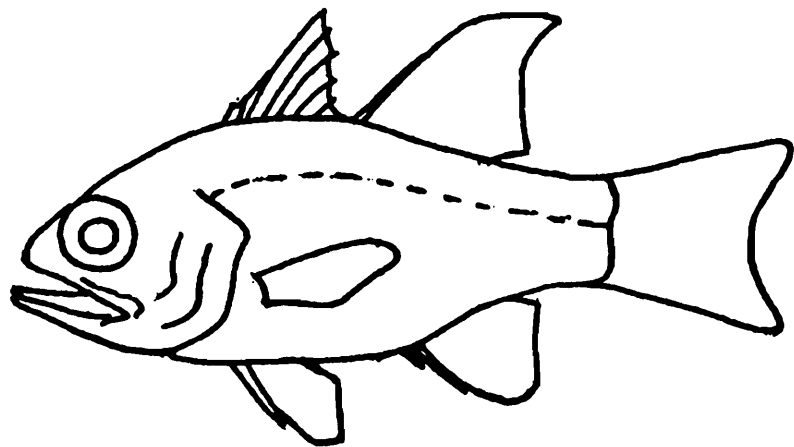


Fig. 86 Apogonidae

80b 1st dorsal with 10-13 spines, anal with 17-28 rays SILLAGINIDAE

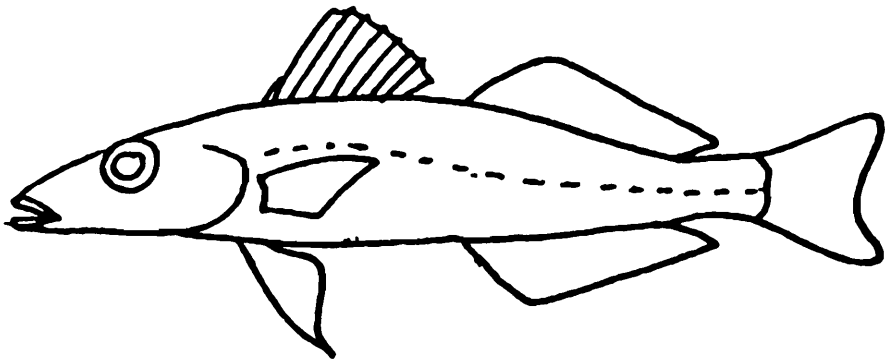


Fig. 87 Sillaginidae

- 81a Canals and pores on head absent; ventral fins separated; lateral line present 83
- 81b Canal and pores on head present; ventral fins connected by membrane or not; lateral line absent 82
- 82a Ventral fins united to form a cup or united at base; branchiostegal rays 5 GOBIIDAE

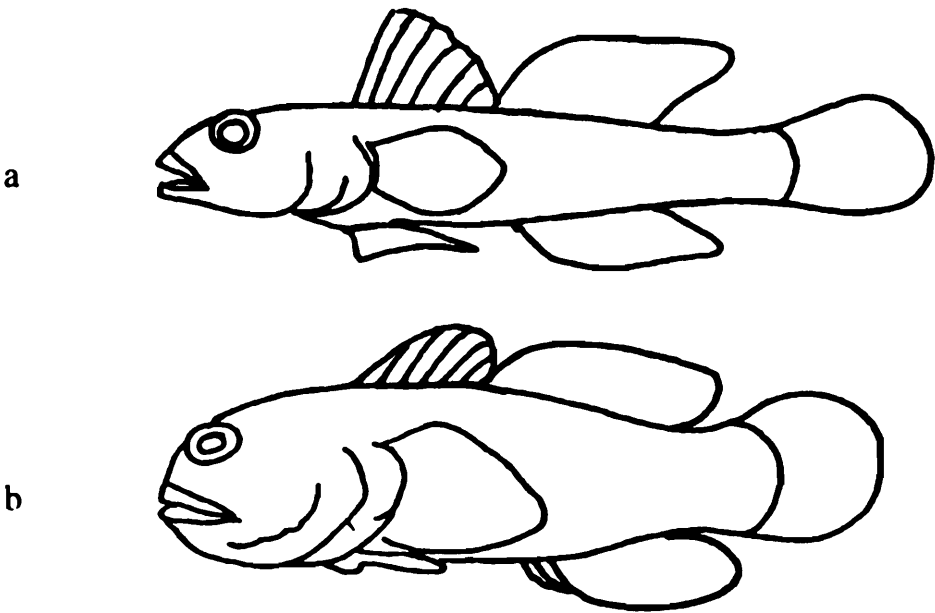


Fig. 88a, b Gobiidae

82b Ventral fins widely separated; branchiostegal rays 6.....ELEOTRIDIDAE

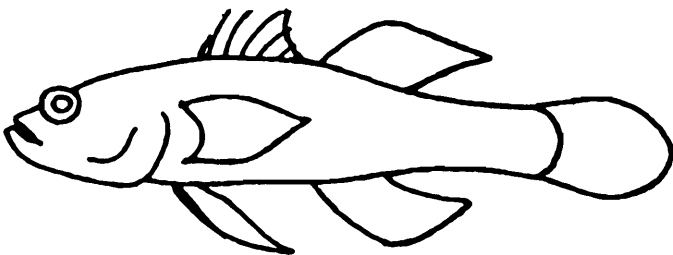


Fig. 89 Eleotrididae

83a Caudal fin forked; preoperculum with double edge AMBASSIDAE

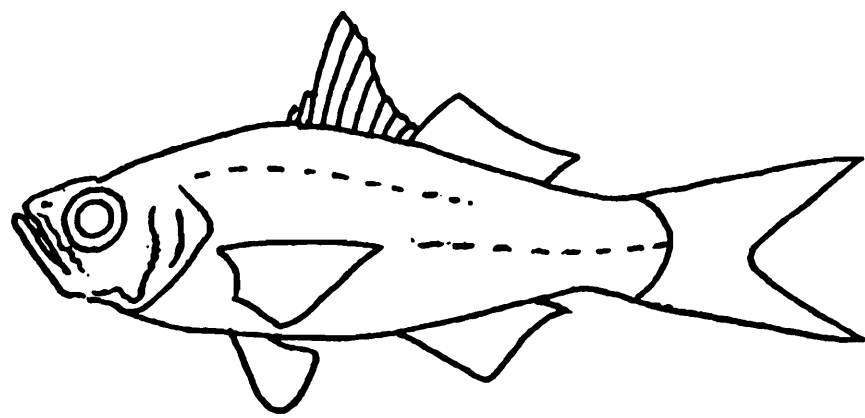


Fig. 90 Ambassidae

83b Caudal fin rounded; preoperculum with single edge (no ridge) CENTROPOMIDAE

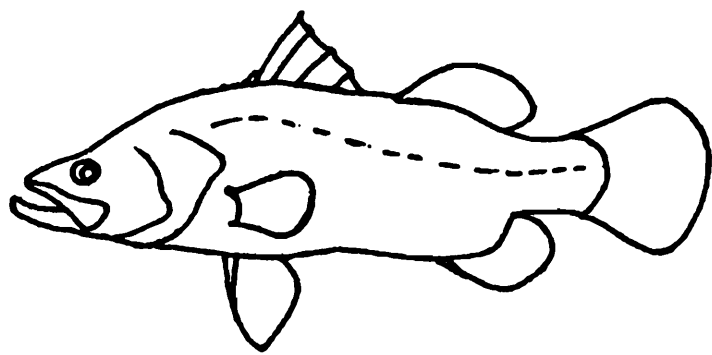


Fig. 91 Centropomidae

84a Fins without spines; scales on head larger than those on body CHANNIDAE

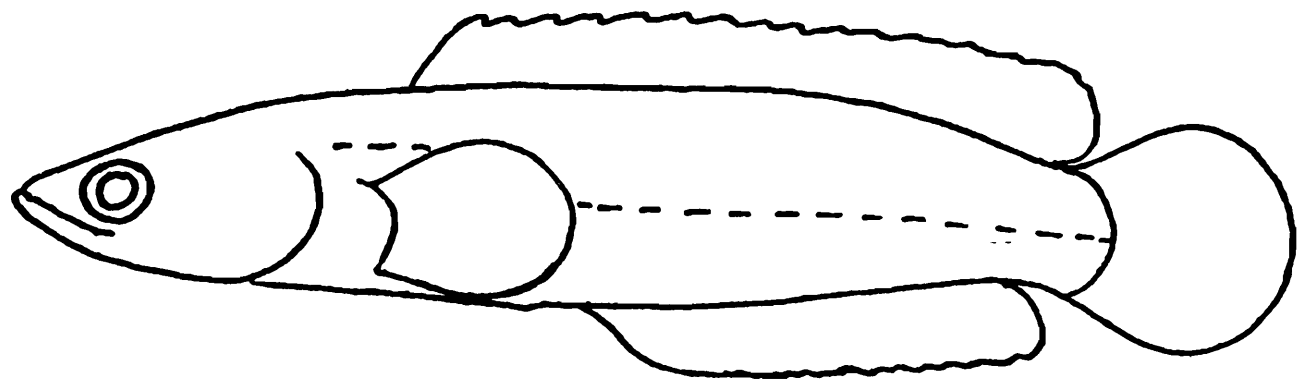


Fig. 92 Channidae

84b Fins with spines; if present, scales on head smaller than on body 85

85a Anal fin with 8-11 spines ANABANTIDAE

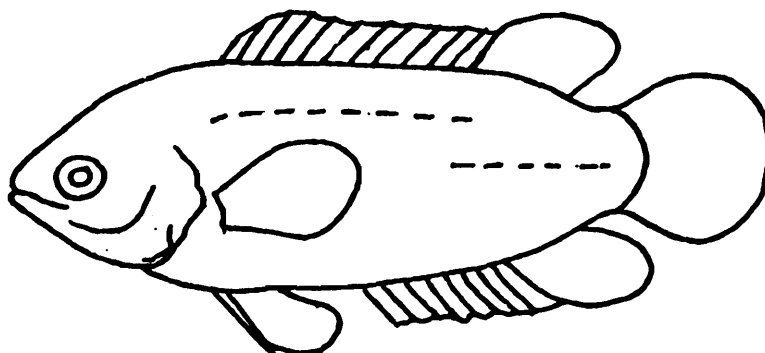


Fig. 93 Anabantidae

85b Anal fin with 2-3 spines 86

86a Dorsal fin inserted in posterior half of body and above anal fin; soft dorsal base shorter than soft anal base TOXOTIDAE

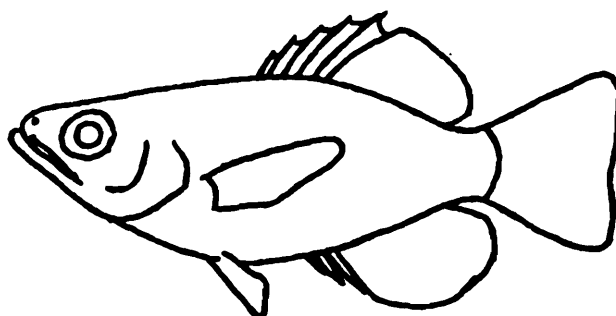


Fig. 94 Toxotidae

86b Dorsal fin inserted in anterior half of body; soft dorsal base equal to or longer than soft anal base 87

87a Ventral fins with an axillary scale 88

87b Ventral fins without axillary scale 98

88a Teeth comb-like; no canine teeth; body deep and compressed CHAETODONTIDAE

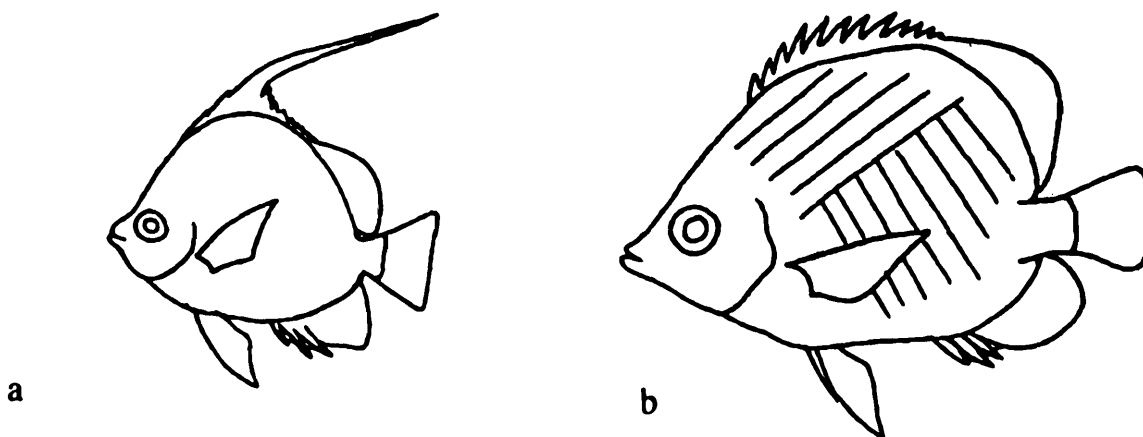


Fig. 95a, b Chaetodontidae

- 88b No comb-like teeth, if present, canine teeth also present 89
- 89a Anal fin with 2 spines; lateral line scales extending to hind margin of caudal fin
.....SCIAENIDAE

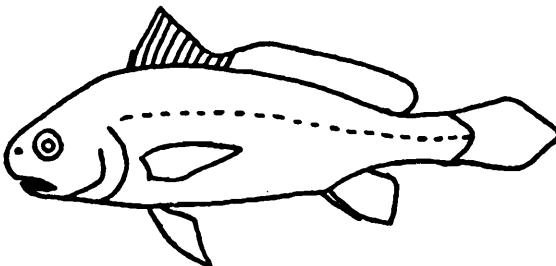


Fig. 96 Sciaenidae

- 89b Anal fin with 3 spines; lateral line scales ending at caudal base 90
- 90a Mouth strongly protractile.....91
- 90b Mouth moderately protractile 92
- 91a Head naked or with small scales on cheek; nuchal spine on nape; gill membranes united with
isthmus LEIOGNATHIDAE

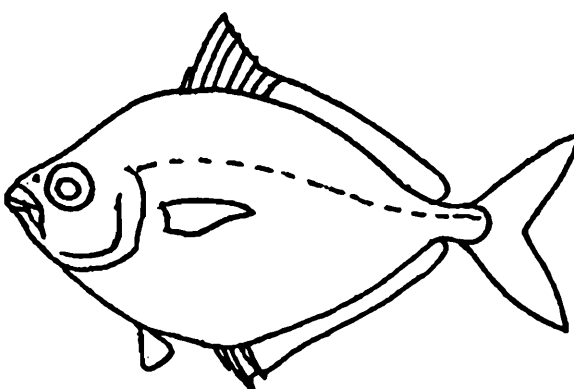


Fig. 97 Leiognathidae

- 91b Head scaled; nape smooth; gill membranes free from isthmus GERREIDAE

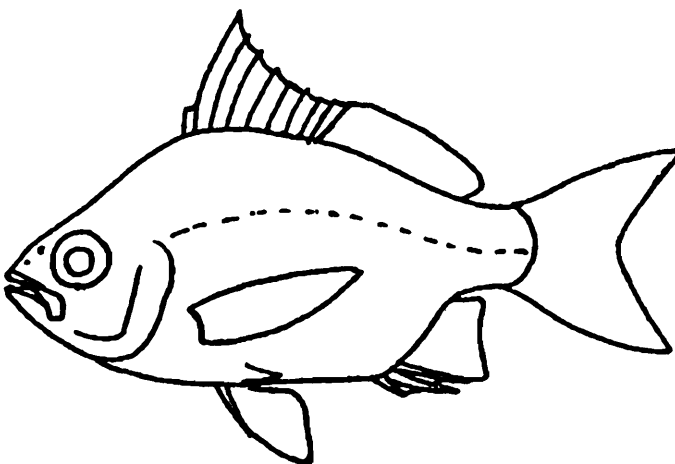


Fig. 98 Gerreidae

- 92a Rear end of premaxilla grooved to receive tip of maxilla; vomer and palatines edentate.....
SPARIDAE

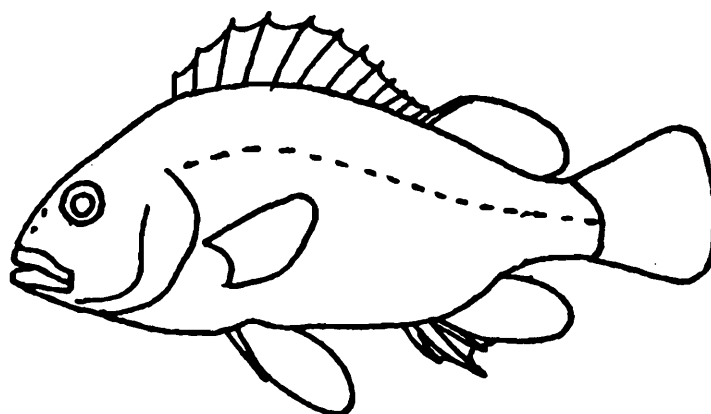


Fig. 99 Sparidae

- 92b No groove on premaxilla 93
 93a Outer row of teeth in jaws with long curved roots KYPHOSIDAE

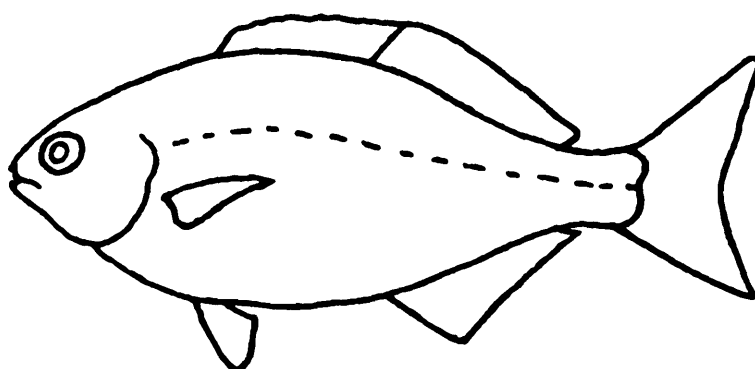
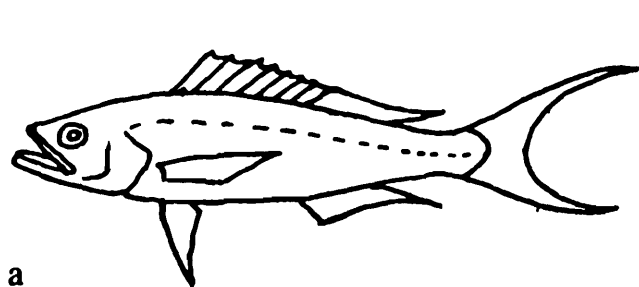
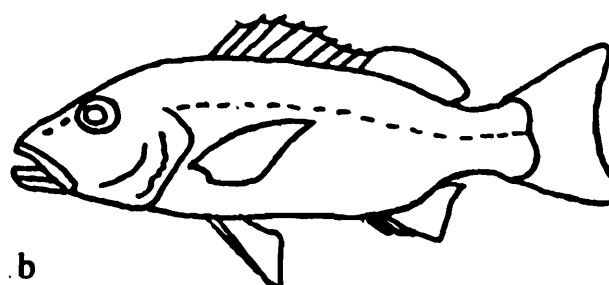


Fig. 100 Kyphosidae

- 93b Teeth without curved roots 94
 94a Sub-orbital process well developed and sometimes forming a spine posteriorly 95
 94b Sub-orbital process absent or weak 97
 95a Dorsal and anal fin spines very strong; premaxilla with a broad based mid-lateral process; teeth on vomer and palatines LUTJANIDAE



a



b

Fig. 101a, b Lutjanidae

- 95b Dorsal and anal spines weak; no teeth on palate 96
- 96a Premaxilla with 1-2 distinct process; soft parts of dorsal and anal scaled; upper jaw highly protrusile.....CAESIONIDAE

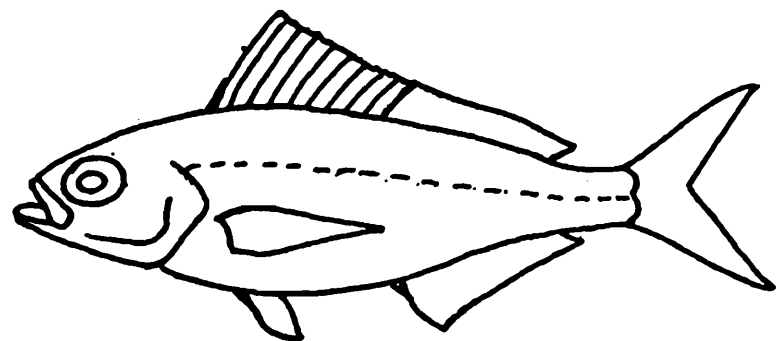


Fig.102 Caesionidae

- 96b Premaxilla with a low mid-lateral process; dorsal and anal fins not scaled; upper jaw not protrusile NEMIPTERIDAE

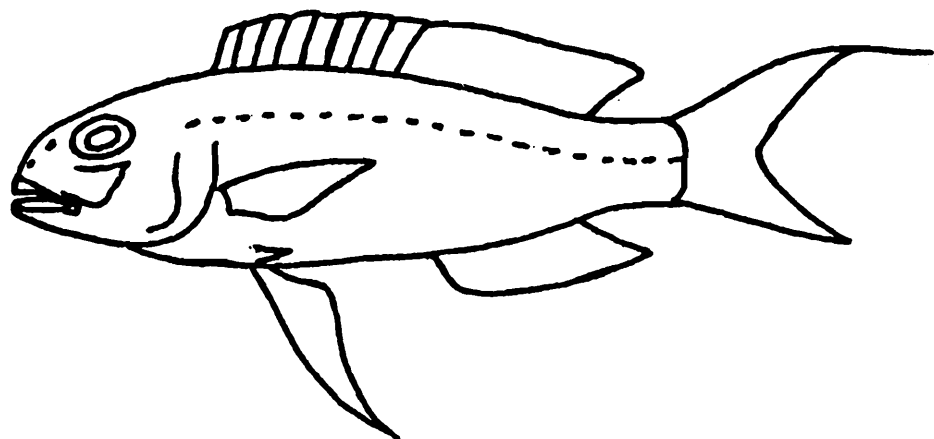


Fig. 103 Nemipteridae

- 97a Cheek scaled, chin with 2-6 pores HAEMULIDAE

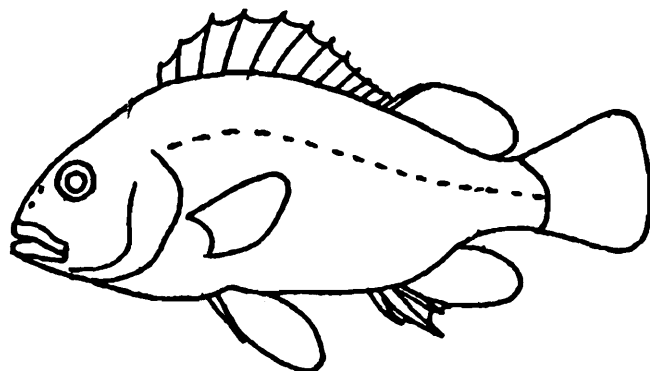


Fig. 104 Haemulidae

97b No scales on cheek; chin without pores.....LETHRINIDAE

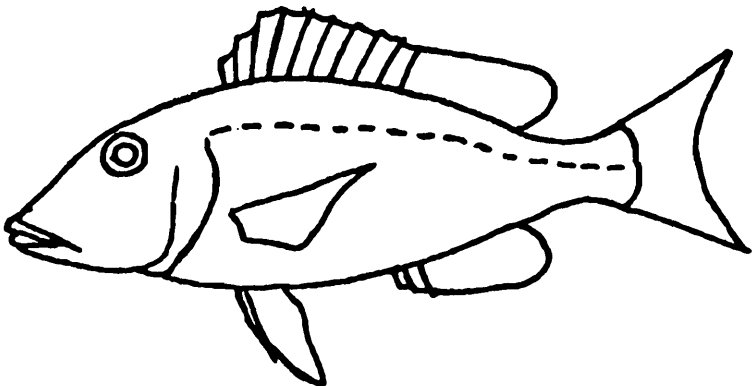


Fig. 105 Lethrinidae

- 98a Inner rays of ventral fin attached to abdomen by membrane 99
- 98b Inner rays of ventral free 100
- 99a Dorsal fin with 2-9 spines; upper edge of preopercle fused to head GRAMMISTIDAE

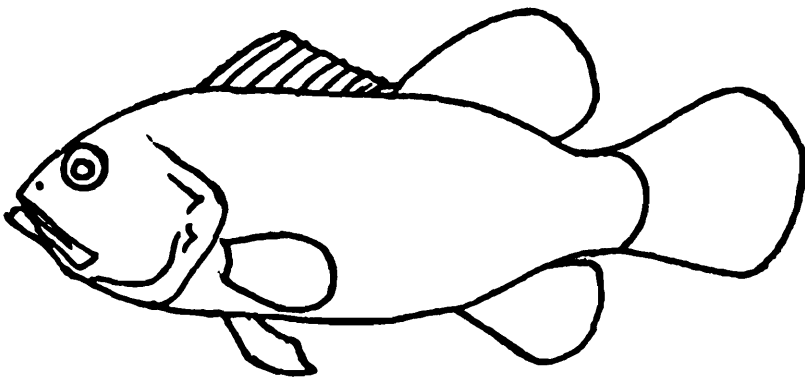


Fig. 106 Grammistidae

- 99b Dorsal fin with 10 spines; upper edge of preopercle free from head; eyes large
.....PRIACANTHIDAE

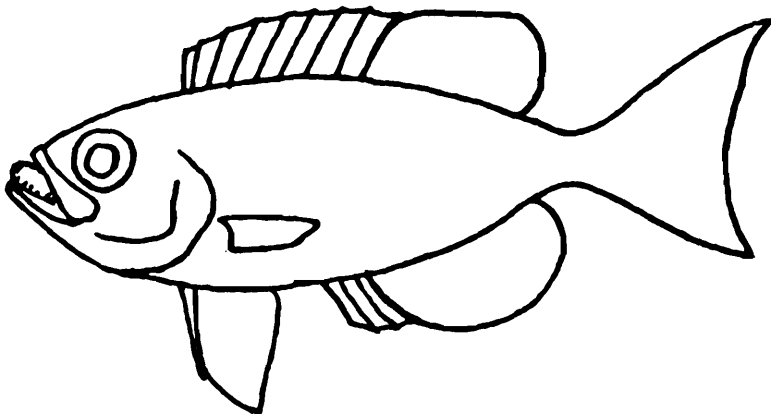


Fig. 107 Priacanthidae

- 100a Maxilla extending to below hind margin of eye; dorsal with 7-12 spines; operculum with 1-3 flat spines SERRANIDAE

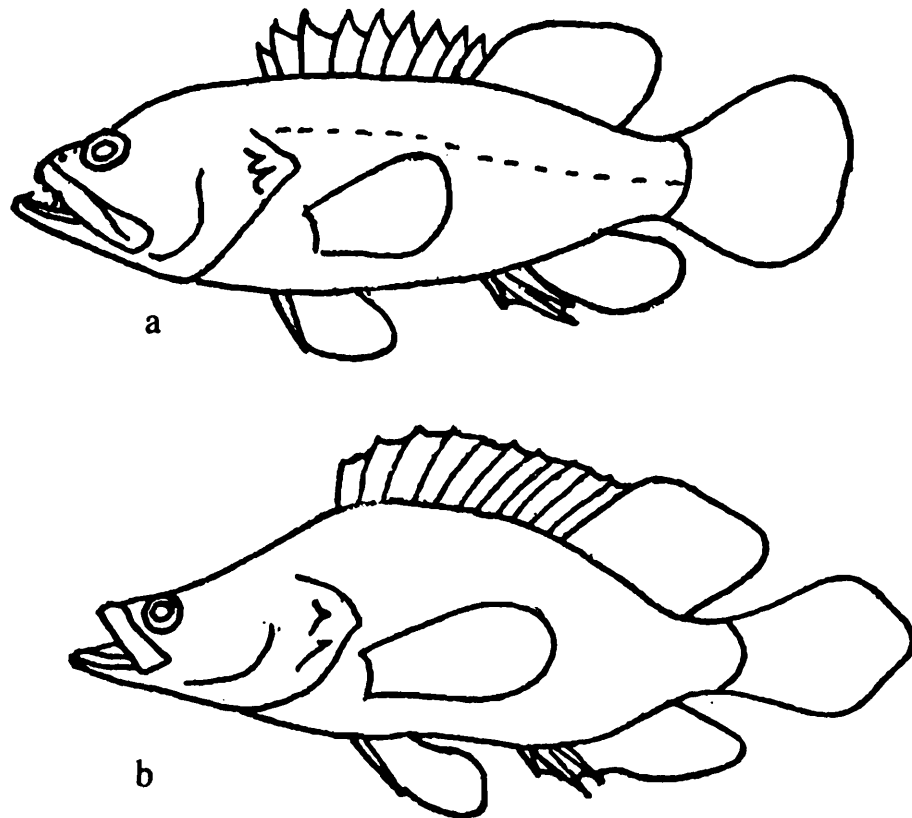


Fig. 108 a, b Serranidae

- 100b Maxilla not extending beyond centre of eye; dorsal with 12-14 spines; operculum with 1 or 2 strong spines TERAPONIDAE

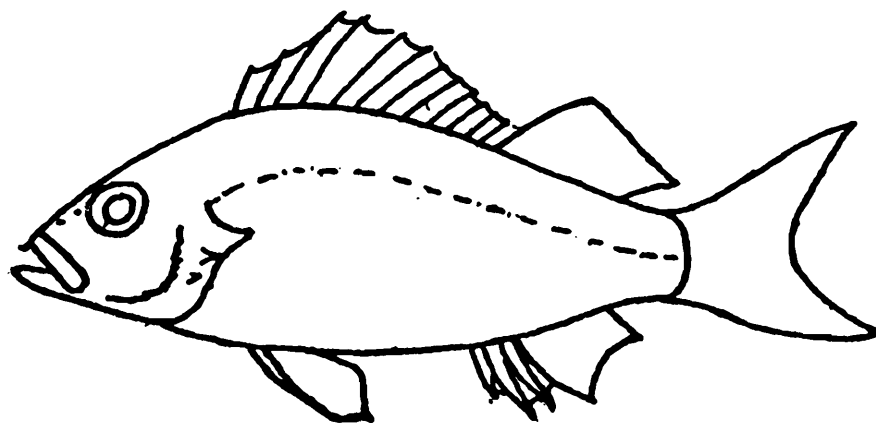


Fig. 109 Teraponidae

- 101a Dorsal, anal and ventral fins with one or more spines; dorsal fin origin well behind eyes
.....PSETTODIDAE

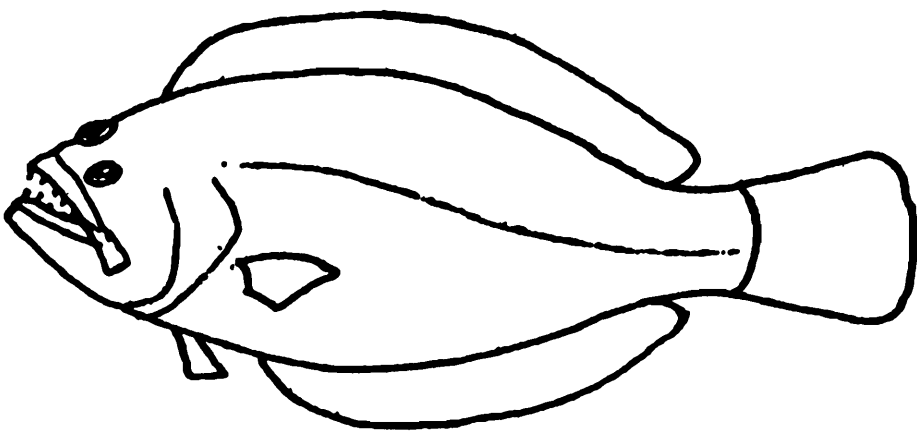


Fig. 110 Psettodidae

- 101b No spines in fins; dorsal fin origin before or at eyes 102
- 102a Preopercle margin free, distinct, not covered by skin; ribs absent; eyes on left side of head **BOTHIDAE**

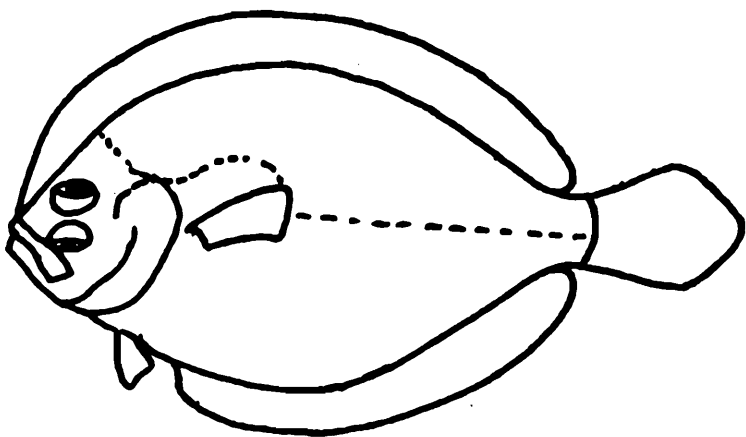


Fig. 111 Bothidae

- 102b Preopercle margin hidden by skin and scales; ribs present; eyes on left side or right side of head 103
- 103a Eyes on left side of head **CYNOGLOSSIDAE**

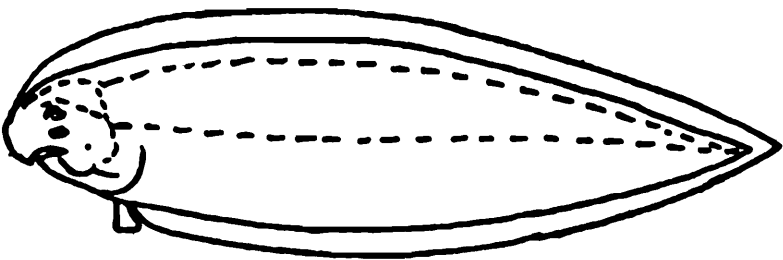


Fig. 112 Cynoglossidae

103b Eyes on right side of head SOLEIDAE

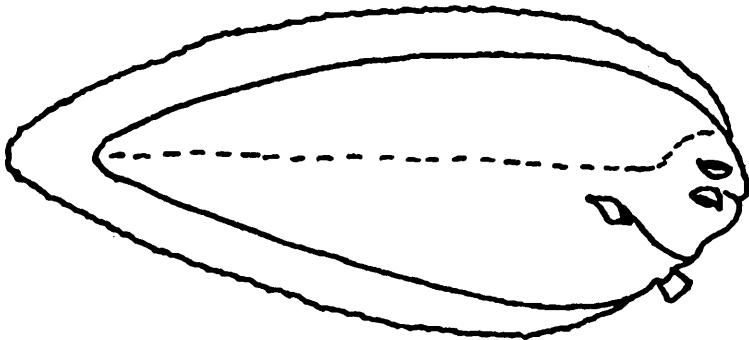


Fig. 113 Soleidae

Class CHONDRICHTHYES

Sub Classes ELASMOBRANCHII

Order LAMNIFORMES

Two dorsal fins; no spines in fins; anal fin present; gill-slits 5; spiracles present or absent; placoid scales on body.

Family ORECTOLOBIDAE

Mouth short, situated well in front of eyes; five pairs of gill slits on sides of head; two dorsal fins; nostrils with distinct barbels and continuous with mouth; 2nd dorsal and anal fins relatively larger; no precaudal pits; teeth in jaws multicuspid.

Key to genera

- 1a Lower lip grooves continuous across chin; spiracles under eye; caudal shorter than body without head*Chiloscyllium*
- 1b Lower lip grooves separate, not continuous across chin; spiracles behind eye; caudal longer than body*Stegostoma*

Genus *Chiloscyllium* Muller & Henle, 1837

Chiloscyllium punctatum Muller & Henle, 1838

1838. *Chiloscyllium punctatum* Muller & Henle, *Syst. Besch. Plagoist.*, pt. 1, p. 19; pl. 4.

1993. *Chiloscyllium punctatum* : Rajan et al, *J Andaman Sci. Assoc.*, 9 (1&2) : 103.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 1 ex., 290 mm, Coll : D. V Rao & party, Reg. No. 2489.

Diagnostic features: Body and tail moderately slender; no lateral ridges on trunk; nostril with barbel; dorsal fins larger than ventral fins, dorsals with free projecting tips; 1st dorsal origin over anterior halves of ventral bases; anal fin origin somewhat behind free rear tip of second dorsal. Body light brown with dark transverse bands and scattered dark spots.

Habitat : Found in inshore waters around reefs.

Distribution : Indo-West Pacific, from east coast of India, Andaman Is. to Japan and Australia.

Genus *Stegostoma* Muller & Henle, 1837

Stegostoma fasciatus (Hermann, 1783)

(Fig. 114)

1783. *Squalus fasciatus* Hermann, *Tab. Affin.*, p. 302.

1993. *Stegostoma fasciatus* : Rao *et al*, *J Andaman Sci. Assoc.*, 9 (1&2) : 50.

Material examined : Chidiyatapu (South Andaman), 30.5.1985, 1 ex., 385 mm, Coll : G. Balaram, Reg. No. 1666.

Diagnostic features : Body cylindrical, elongate with prominent ridges on sides; head broad and conical; gill slits small, the 1st overlapping 4th; nostrils with short pointed barbels; first dorsal larger than the second, with origin well ahead of ventral fins; upper lobe of caudal fin at a low angle above the body axis, with strong terminal lobe and subterminal notch. Body dark brown above, yellowish below with vertical yellow stripes and spots, breaking the dorsal colouration into dark saddles.

Habitat : Found around shallow reef areas.

Distribution : Indo-west Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and southwards Australia to Palau Islands.

Family CARCHARHINIDAE

Mouth long and extending behind eyes; 5 pairs of gill slits on sides of head; lower nictitating eye lid movable; 2 dorsal fins, first dorsal base much shorter than upper caudal lobe, its origin in front of ventral fins; anal fin separated from caudal; caudal fin with distinct lobe; spiracles present or absent; barbels absent.

Key to genera

- 1a Second dorsal at least half as high as first dorsal; spiracles present; lip folds minute; tip of first dorsal and upper caudal lobe white*Triaenodon*
- 1b Second dorsal less than half as high as first dorsal; spiracles absent; lip folds well developed 2
- 2a Second dorsal origin about over anal axil*Rhizoprionodon*

- 2b Second dorsal origin nearer to a vertical line at anal origin than to vertical at axil; upper jaw teeth serrated ***Carcharhinus***

Genus ***Carcharhinus*** Blainville, 1816

Carcharhinus melanopterus (Quoy & Gaimard, 1824)

1824. *Carcharhinus melanopterus* Quoy & Gaimard, *Voy. Uranie. zool.*, p. 194, pl. 43, fig. 1 & 2.
1986. *Carcharhinus melanopterus* : Bass *et al.*, in Smith & Heemstra, *Smith's Sea Fishes*, p. 75, fig. 9. 13.

Material examined : Chidiyatapu (South Andaman), 31.7.1992, 1 ex., 430 mm, Coll : D. V. Rao, Reg. No. 2732.

Diagnostic features : Body fusiform, snout moderately pointed; spiracles absent; dorsal fin origin behind base of pectoral fin; anal fin origin below second dorsal origin; no keels on caudal peduncle, no lateral ridge. Body pale-brown on back, lighter below; tips of all fins black.

Habitat : Found in shallow reef areas.

Distribution : Indo-west Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Marquesas Islands.

Genus ***Rhizoprionodon*** Whitely, 1929

Rhizoprionodon acutus (Ruppell, 1837)

1837. *Carcharias acutus* Ruppell, *Fische des Rothen Meeres.*, p. 65.
1980. *Scoliodon walbeehmi* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 23, fig. 8.
1986. *Rhizoprionodon acutus* : Bass *et al.*, in Smith & Heemstra, *Smith's Sea Fishes*, p. 85, fig. 9.33.

Material examined : Rangat Bay (Middle Andaman), 20.8.1991, 1 ex., 385 mm, Coll : K. Chandra & party, Reg. No. 1738.

Diagnostic features : Body fusiform; snout long and pointed; upper labial furrow longer; teeth with smooth edges; origin of second dorsal just in front of anal fin axil; no spiracles or interdorsal ridge. Body grey above, dull yellowish-white below; all fins grey.

Habitat : Found in shallow coastal waters on sand bottom.

Distribution : Wide spread in east Atlantic and Indo-Pacific.

Genus ***Triaenodon*** Muller & Henle, 1837

****Triaenodon obesus*** (Ruppell, 1837)

1837. *Carcharhinus obesus* Ruppell, *Neue, Wirbelth. Fische Rothen Meeres.*, p. 64, pl. 18, fig. 2.
1986. *Triaenodon obesus* : Bass *et al.*, in Smith & Heemstra, *Smith's Sea Fishes*, p. 86, fig. 9.35.

Material examined : North Reef Is. (North Andaman), 25.3.1993, 1 ex., 1170 mm, Coll : G. C. Rao & party, Reg. No. 2253.

Diagnostic features : Body elongate, head flat and depressed; snout blunt, short and broadly rounded; lip folds minute; jaw teeth with side cusps; first dorsal fin origin midway between pectoral and ventral fins; no interdorsal ridge. Body greyish brown above, white below; fins dusky; tip of first dorsal and upper caudal lobe white.¹

Habitat : Found in clear coastal waters near reefs.

Distribution : Wide spread in tropical Indo-Pacific region.

Order RAJIFORMES

Body greatly flattened; pectoral fins expanded and fused with head and trunk; snout angular or rounded; electric organs present in the disc or in tail; dorsal fins two or one, or none in some species; tail thick or slender and whip-like, with or without sting.

Family TORPEDINIDAE

Head, body and pectoral fins form a rounded, soft and oval disc; two large electric organs in the disc; nasal flaps broad; nasal curtain short; mouth narrow and transverse; gill openings on under side of disc; one or no dorsal fins; caudal fin large; tail large and strong.

Genus *Narke* Kaup, 1826

**Narke* sp.

Material examined : Rutland Is. (South Andaman), 25.1.1994, 1 ex., 132 mm, Coll : D. V. Rao & Party, Reg. No. 2844.

Diagnostic features : Head, body and pectoral fins form a round disc; mouth narrow and transverse; five pairs of gill openings on under side of disc; jaws with minute cuspidate teeth; rostrum narrow; tail short and strong; caudal fin large; no dorsal fin; disc smooth. Body brown above, white below.

Habitat : Found on silty-sand areas near reefs.

Distribution : Andaman Islands and elsewhere.

Family RHINOBATIDAE

Body elongate and flattened; tail stout; snout wedge-shaped; jaws with numerous blunt teeth; nasal flaps not expanded; nostril in front of mouth; two dorsal fins; caudal fin well developed.

Genus *Rhinobatos* Linck, 1790

Rhinobatos granulatus Cuvier, 1829

1829. *Rhinobatos granulatus* Cuvier, *Regene Animal.*, ed. 2. p. 396.

1984. *Rhinobatos granulatus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 81.

Material examined : Malay Is. (South Andaman), 4.12.1990, 2 exs., 328 & 354 mm, Coll : K. V. Raman & party, Reg. No. 1629.

Diagnostic features : Disc longer than wide, tapering to a pointed snout; rostral ridge joining at anterior end of snout; nostrils wide, about half width of mouth; spiracles smaller than eye; 1st dorsal origin behind ventral fin; no anal fin; back coarsely tuberculated; small thorns on mid-line of snout and strong thorns on mid-dorsal side of body. Body brownish above; snout buff brown; ventral side whitish; dorsal and caudal fins grey.

Habitat : Found on sandy bottom in shallow coastal waters.

Distribution : Indo-West Pacific, from Gulf of Oman, coasts of India, Andaman Is., Sri Lanka to Indonesia.

Family DASYATIDAE

Body disc-like, 1 to 2 times as wide as long; snout angular or rounded; five pairs of gill openings on under side of disc; small blunt or cuspidate teeth on jaws; tail slender, whip-like with a large sting on its dorsal side; dorsal and ventral fin folds present or absent.

Key to genera

- 1a Tail several times longer than disc; no fin folds; tail base narrow and not depressed
.....*Himantura*
- 1b Tail less than twice or more in disc length; fin folds present on tail; tail base broad and somewhat depressed 2
- 2a Ventral tail fold very prominent, its height 2 or 3 times the height of tail above fold
.....*Hypolophus*
- 2b Ventral tail fold indistinct, its height less than height of tail above fold*Dasyatis*

Genus *Dasyatis* Rafinesque, 1810

Key to species

- 1a Disc with scattered sharp stellate denticles; tail with sharp denticles; no dorsal fold on tail
.....*D. thetidis*

- 1b Disc largely naked, with few mid-dorsal denticles; small fin fold on tail; tail naked.....
***D. kuhlii***

***Dasyatis kuhlii* (Muller & Henle, 1841)**

1841. *Trygon kuhlii* Muller & Henle, *Syst. Besch. Plagiost.*, p. 164, pl. 51, fig. 2.

1986. *Dasyatis kuhlii* : Compagno, in Smith & Heemstra, *Smith's Sea Fishes*, p. 137, pl. 6.

Material examined : Corbyn's cove (South Andaman), 31.7.1993, 1 ex., 130 mm (Disc length),
Coll : D. V. Rao & party, Reg. No. 2847.

Diagnostic features : Disc kite-like, wider than long; naked with few dorsal denticles; snout short and gently rounded; two oral papillae; tail about as long as disc with upper and lower cutaneous folds; a pair of sharp spines on upper surface of middle part of tail. Body pale brown with small bright ocelli with blue centers and scattered black spots; under side of disc white; tail with black and white bands behind sting.

Habitat : Found in sandy areas adjacent to reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and southwards Australia.

***Dasyatis thetidis* Ogilby, 1899**

1899. *Dasyatis thetidis* Ogilby, in Waite, *Aust. Mus. Mem.*, 4 : 46.

1986. *Dasyatis thetidis* : Compagno, in Smith & Heemstra, *Smith's Sea Fishes*, p. 137, fig. 30.4.

Material examined : Outram Is. (Ritchie's Archipelago), 26.2.1994, 1 ex., 322 mm (Disc length),
Coll : D. V. Rao & party, Reg. No. 2921.

Diagnostic features : Body disc-like, snout broadly angular; disc width 0.92 in its length, slightly wider than long; tail longer than disc length, about 1.8 in disc length; disc with sharp scattered denticles, snout to sting with mid-dorsal row of strong thorns; no dorsal fold on tail; tail covered with sharp denticles; a strong serrated spine on its dorsal surface. Body dark grey-black, light below.

Habitat : Found around coral reefs in shallow areas.

Distribution : Indo-West Pacific, from east coast of Africa, Andaman Is. Australia and New Zealand.

Genus *Himantura* Muller & Henle, 1841

*** *Himantura gerrardi* (Gray, 1851)**

1851. *Trygon gerrardi* Gray, *Fish. Brit. Mus.*, pt. 1, p. 116.

1986. *Himantura gerrardi* : Compagno, in Smith & Heemstra, *Smith's Sea Fishes*, p. 139, fig. 30.9.

Material examined : Port Blair (South Andaman), 26.12. 1994. 1 ex., 187 mm (Disc length), Coll : Vallabha Rao, Reg. No. 2846.

Diagnostic features : Disc wider than long, about 4.2 in its length; tail long, about 3.5 in disc length; snout forming widely obtuse angle; mid line of back with 3 enlarged tubercles; disc naked; tail whip-like without cutaneous folds, with one spine. Body light-brown above, white below; tail with numerous transverse bands of dark and light brown.

Habitat : Found on reefs in shallow areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is. Sri Lanka, to Japan and southwards Australia.

Genus *Hypolophus* Muller & Henle, 1841

Hypolophus sephen (Forsskal, 1775)

1775. *Raja sephen* Forsskal, *Descript. Animal*, p. 17.

1986. *Hypolophus sephen* : Compagno, in Smith & Heemstra, *Smith's Sea Fishes*, p. 140, fig. 30.12.

Material examined : Port Blair (South Andaman), 13.1.1994, 1 ex., 340 mm (Disc width); Coll : P. T. Rajan, Reg. No. 2499.

Diagnostic features : Disc somewhat quadrangular, 1.4 times wider than long; mouth undulated with 4 papillae; tail depressed with broad lower cutaneous fold and extends more than half way to its tip; serrated spine on its second quarter of tail; dorsal surface of disc granular with three central flattened tubercles in vertical row. Body dark grey on dorsal surface, paler towards sides; ventral surface white; caudal fold and filamentous part of tail black.

Habitat : Found in shallow coastal areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to China Sea and Australia to Melanesia.

Family MYLIOBATIDAE

Genus *Aetobatus* Blainville, 1820

Aetobatus narinari (Euphrasen, 1790)

1790. *Raja narinari*: Euphrasen, *Kon, Vet. Acad. Nija Handi, Stockholm*, 11 : 217, pl. 10.

1986. *Aetobatus narinari*: : Compagno, in Smith & Heemstra, *Smith's Sea Fishes*, p. 132, fig. 28.1.

Material examined : Port Blair (South Andaman), 13.1.1994, 1 ex., 430 mm (Disc length), Coll : P. T. Rajan, Reg. No. 1213.

Diagnostic features : Head, body and pectoral fins form a strong angular disc, the disc 1.8 in its width; snout elongate and narrow; one row of tooth plates in each jaw; nasal curtain deeply notched; tail whip-like; dorsal fin situated posterior to base of ventral fins; two serrated spines behind dorsal

fin; skin smooth. Body blue-black with numerous scattered white spots, ventral surface white; tail black.

Habitat : Found around inshore reef areas.

Distribution : Wide spread in Atlantic and Indo-Pacific region.

Class OSTEICHTHYES

Order ELOPIFORMES

Body slender and compressed; gill openings wide; paired fins with long axillary scale; no spines in fins; ventral fins abdominal; caudal fin deeply forked; scales cycloid.

Family MEGALOPIDAE

Body somewhat compressed; slightly deep-bodied; no scutes on belly; mouth terminal, fairly large; bony gularplate located under mouth; single dorsal fin, the last ray elongated; anal fin origin slightly behind last dorsal ray; no spines in fins; scales on body large; caudal fin forked.

Genus *Megalops* Lacepede, 1803

Megalops cyprinoides (Broussonet, 1782)

(Fig. 115)

1782. *Clupea cyprinoides* Broussonet, *Ichthyol.*, pl. 9.

1986. *Megalops cyprinoides* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 156, fig. 37.1.

Material examined : Wrightmyo (South Andaman) 4.2.1989, 1 ex., 273 mm, Coll : Kamla Devi, Reg. No. 2099; Shoal Bay (South Andaman), 27.6.1989, 2 exs., 269 mm, B. Mitra & party, Reg. No. 1426; Mayabunder (North Andaman), 15.8.1991, 1 ex., 320 mm, Coll : K. Chandra & party, Reg. No. 1679; Bambooflat (South Andaman), 15.2.1992, 1 ex., 274 mm, Coll : P. T. Rajan, Reg. No. 2141; North Reef Is. (North Andaman), 26.3.1993, 1 ex., 285 mm, Coll : G. C. Rao & party, Reg. No. 2231.

Diagnostic features : D. 18-20; A. 26-28; P. 15-16; V. 10-11; Ll. 38-40. Body fusiform; mouth superior; lower jaw projecting; a median gular bone under side of chin; upper jaw extending to hind border of eye; last dorsal ray elongated and filamentous. Body blue-green above, flanks silvery.

Habitat : Found in creeks and coastal waters.

Distribution : Indo-West Pacific, from east coast of Africa, Gulf of Omen, coasts of India, Andaman Is., Sri Lanka to Indonesia and Philippines to China Sea.

Family ALBULIDAE

Body elongate and fusiform; snout conical, projecting beyond lower jaw; maxilla toothless; single dorsal fin; ventral fins located in the middle of body; scales small; head naked; lateral line present; caudal fin forked.

Genus *Albula* Scopoli, 1777

Albula vulpes (Linnaeus, 1758)

1758. *Esox vulpes* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 313.

1986. *Albula vulpes* : Smith, in Smith & Heemstra, *Smith's Sea Fishes* , p. 157, fig. 38.1.

Material examined : Bambooflat (South Andaman), 27.1.1993, 1 ex., 300 mm, Coll : P. T. Rajan, Reg. No. 2172.

Diagnostic features : D. 17; A. 8; P. 17; V. 10; Ll. 73. Depth 4.4, head 3.7 in standard length; eye 4.7 in head, snout rather pig-like, mouth inferior. Colour brilliant silvery with narrow dark horizontal lines; all fins dusky and yellow at base of pectoral fin.

Habitat : Found in creeks and shallow coastal waters.

Distribution : Found in all tropical Seas.

Order ANGUILLIFORMES

Body snake-like with low dorsal and anal fins, continuous with caudal fin; ventral fins absent; pectoral fins present or absent; no spines in fins; gill openings narrow as a slit or hole on each side; scales absent or small, embedded; maxilla toothed.

Family ANGUILLIDAE

Body slightly robust, tail compressed; small embedded scales on body; median fins continuous around tail; dorsal fin origin mid way between pectoral base and anus; lips thick; lateral line complete with small pores.

Genus *Anguilla* Schrank, 1798

Key to species

- 1a Dorsal origin midway between pectoral base and anus; vomerine tooth patch very narrow posteriorly*A. bicolor bicolor*
- 1b Dorsal origin above or in front of anus; vomerine tooth band not narrow posteriorly*A. bengalensis bengalensis*

Anguilla bengalensis bengalensis (Gray, 1831)

1831. *Muraena bengalensis*, Gray, *Illust. Indian Zool.*, pl. 95.

1991. *Anguilla bengalensis bengalensis* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries* 1 : 74.

Material examined : Great Nicobar Is. 18.11.1993, 1 ex., 452 mm, Col : K. Chandra & party, Reg. No. 3039.

Diagnostic features : Dorsal origin nearer to anus than pectoral base; teeth a narrow band, toothless groove between innermost row and outer rows on jaws; vomerine tooth band very narrow posteriorly. Body olive-yellow, mottled with brown, lighter latero-ventrally.

Habitat : Found in creeks and back waters.

Distribution : India, Andaman Is. and Sri Lanka.

Anguilla bicolor bicolor Mc Clelland, 1844

1844. *Anguilla bicolor* Mc Clelland, *J. nat. Hist., Calcutta*, p. 174, pl. 6, fig. 1.

1986. *Anguilla bicolor bicolor* : Castle, in Smith & Heemstra, *Smith's Sea Fishes*, p. 160, fig. 39.2.

Material examined : Kadkachang (South Andaman), 29.7.1978, 2 exs., 620 & 690 mm, Coll : M. K. Dev Roy & party, Reg. No. 1324.

Diagnostic features : Dorsal fin origin slightly before anus; close-set broad bands of teeth on jaws and vomer; vomerine tooth band broad posteriorly. Body dark bluish-brown, lighter below from head to anus.

Habitat : Found in creeks.

Distribution : Indian Ocean, from Kenya, Madagascar, Seychellies, Mauritius, coasts of India and Andaman Islands.

Family MURAENIDAE

Body elongate, snake-like and robust in many species; scaleless; tail compressed; dorsal fin origin before gill opening; dorsal and anal fins continuous with caudal; pectoral fins absent; mouth moderate; posterior nostrils either a slit or tube situated above or before eye; teeth small, conical, molariform or depressible fangs; head pores common; gill opening as a mid-lateral pore.

Key to genera

- 1a Teeth needle like and pointed; median fins restricted to rear end of tail *Uropterygius*
- 1b Teeth either pointed, blunt or chisel-like; dorsal fin beginning ahead of gill opening and anal fin just behind anus 2
- 2a Teeth molariform or granular; no canine teeth *Echidna*
- 2b Teeth not molariform, canine teeth present 3
- 3a One or more depressible fangs in middle of front of upper jaw; teeth on vomer in single row *Gymnothorax*

- 3b No depressible fangs in middle of front of upper jaw; 2 rows of conical teeth on vomer
.....*Siderea*

Genus *Echidna* Forster, 1777

Key to species

- 1a Body with two rows of star-like blotches*E. nebulosa*
1b Body blackish-brown with narrow yellow vertical bars*E. zebra*

Echidna nebulosa Ahl, 1789

1789. *Echidna nebulosa* Ahl, *Dissert de Muraena et Ophichtho*. p. 5, pl. 1, fig. 2.

1986. *Echidna nebulosa* : Castle & Mc Cosker, in Smith & Heemstra, *Smith's Sea Fishes*, p. 167, pl. 7, fig. 41.3.

Material examined : Little Andaman, 9.9.1990, 3 exs., 265 mm, Coll : K. V. Raman & party, Reg. No. 1604; Havelock Is. (Ritchie's Archipelago), 21.11.1991, 2 exs., 257 mm, Coll : D. V. Rao & party, Reg. No. 2063; Chidiyatapu (South Andaman), 19.8.1993, 1 ex., 358 mm, Coll : D. V. Rao, Reg. No. 2922; Rutland Is. (South Andaman), 25.1.1994, 2 exs., 300 mm, Coll : D. V. Rao & party, Reg. No. 2599; Narcondam Is. (North Andaman), 14.3.1994, 2 exs., 182 mm, Coll : D. V. Rao, Reg. No. 2687.

Diagnostic features : Depth 17.6-19.8, head 8.2-9.2 in total length, eye 9.0-9.2 in head; teeth broadly conical; uniserial on jaws, biserial on vomer; a patch of small teeth on intermaxillary; origin of dorsal slightly anterior to level of gill openings. Body yellowish-white with 26-30 brownish-black vertical reticulated blotches, with pale centers and broken blackish lines and spots, these blotches extending onto dorsal and anal fins; numerous black spots between black blotches.

Habitat : Found on reef flats and under rocks.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Hawaiian and Tahiti Islands.

Echidna zebra (Shaw, 1797)

1797. *Gymnothorax zebra* Shaw, *Naturalist Misc.*, 9 : pl. 322.

1986. *Echidna zebra* : Castle & Mc Cosker, in Smith & Heemstra, *Smith's Sea Fishes*, p. 167, pl. 8, fig. 41. 5.

Material examined : Port Blair (South Andaman), 18.11.1980, 1 ex., 410 mm, Coll : M. K. Dev Roy & party, Reg. No. 1343.

Diagnostic features : Depth 16.3, head 9.85 in total length, eye 11.8 in head; snout to anus 1.5 in total length, cleft of mouth reaching far behind of eye; all teeth are molariform in two rows on

lower jaw and as continuous patch on vomer and upper jaw; dorsal fin beginning over gill openings. Body deep blackish-brown with numerous narrow yellowish vertical bars.

Habitat : Found on shallow reef and rocky areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman is., Sri Lanka to Hawaiian Islands.

Genus *Gymnothorax* Bloch, 1795

Key to species

- 1a Teeth on vomer biserial; body dark brown with darker mottlings *G. richardsoni*
- 1b Teeth on vomer uniserial; body dark or light with distinct or diffuse bands, bars or anastomosing lines 2
- 2a Body dark brown with diffuse white wavy bars; anal fin with white border *G. undulatus*
- 2b Body light or dark, no narrow wavey lines 3
- 3a Gill opening in dark spot; body speckled to brown; median fins green edged *G. flavimarginatus*
- 3b Gill opening not in a dark spot; body with black rings, bars or with black spots 4
- 4a Body with black rings; dark spot at corner of mouth *G. ruppelliae*
- 4b Body with irregular rows of black spots; no dark spot at corner of mouth *G. fimbriatus*

Gymnothorax fimbriatus (Bennett, 1831)

(Fig. 116)

1831. *Muraena fimbriatus* Bennett, *Pro. zool. Soc. London*, p. 168.

1993. *Gymnothorax fimbriatus* : Rao, *et al*, *J. Andaman Sci. Assoc.*, 9 (1 & 2) : 50.

Material examined : Port Blair (South Andaman), 31.7.1993, 2 exs., 142 & 198 mm, Coll : D. V. Rao, Reg. No. 2928; Rutland Is. (South Andaman), 25.1.1994, 1 ex., 253 mm, Coll : D. V. Rao, Reg. No. 2608; Outram Is. (Ritchie's Archipelago), 28.2.1994, 4 exs., 182-251 mm, Coll : D. V. Rao & party, Reg. No. 2609 & 2840; Narcondam Is. (North Andaman), 16.3.1994, 2 exs., 432 mm, Coll : D. V. Rao, Reg. No. 2686; Harmander Bay (Little Andaman), 21.3.1995, 2 exs., 167 mm, Coll : D. V. Rao, Reg. No. 2913.

Diagnostic features : Depth 16.8, head 7.5 in total length, eye 8.2 in head, 1.6 in snout and 1.0 in interorbital space; body slender and elongate; tail longer than head and trunk; snout rather long and compressed; lower jaw slightly hooked, the mouth can nearly be closed completely; anterior nostrils tubular; dorsal and anal fins well developed, the former origin nearer to gill opening. Body pale-reddish brown with few small black spots on the head; trunk and tail with irregular rows of black spots, extending obliquely backward as bars on fins; dorsal and anal with a light border.

Habitat : Found in inshore reef areas, under stones, coral rubble and crevices.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan and Marshall to Solomon Islands.

Gymnothorax flavimarginatus (Ruppell, 1830)

1830. *Muraena flavimarginatus* Ruppell, *Atlas. Reise. Nordl. Afrika. Fische. Rothen Meeres.*, p. 119, pl. 30, fig. 3.

1986. *Gymnothorax flavimarginatus* : Castle & Mc Cosker, in Smith & Heemstra, *Smith's Sea Fishes* p. 170, pl. 7, fig. 41.12.

Material examined : Rutland Is. (South Andaman), 21.2.1991, 1 ex., 450 mm, Coll : K. V. Raman & party, Reg. No. 2306; Harmander Bay (Little Andaman), 21.3.1995, 2 exs., 232 mm, Coll : D. V. Rao & party, Reg. No. 2914.

Diagnostic features : Depth 14.3, head 9.2 in total length; eye 8.6 in head, snout to anus 2.25 in total length; teeth sharp and uniserial in jaw, few canines on intermaxillary; small uniserial teeth on vomer; dorsal fin origin nearer to gill opening. Body yellowish-brown with densely mottled dark-brown; median fins green edged; gill opening in a black blotch.

Habitat : Found in shallow coral reefs, coral rubble and weedy areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is. to Ryukyu Is., and Australia to Hawaiian Islands.

Gymnothorax richardsoni (Bleeker, 1852)

1852. *Muraena richardsoni* Bleeker, *Nat. Tijds. Ned. Indie.*, 3 : 296.

1986. *Gymnothorax richardsoni* : Castle & Mc Cosker in Smith & Heemstra, *Smith's Sea Fishes* , p. 172, fig. 41.22.

Material examined : Rutland Is. (South Andaman), 25.1.1994, 1 ex., 160 mm, Coll : D. V. Rao & party, Reg. No. 2689; Narcondam Is. (North Andaman), 14.3.1994, 4 exs. 145-182 mm, Coll : D. V. Rao, Reg. No. 2688.

Diagnostic features : Depth 14.5-15.2, head 6.5-7.0 in total length, eye 8.6-9.1 in head; body slender; uniserial teeth on jaws; few larger teeth on intermaxillary, vomer with biserial conical teeth;

dorsal fin origin at the level of gill opening. Colour yellowish-grey, reticulated with dark brown; chin and throat lighter; lip pores in white spots.

Habitat : Found in crevices of shallow coral reefs and weeds.

Distribution : Indo-Pacific, from Delagoa Bay, northwards to Aldabra and Seychelles. Lakshadweep, coasts of India, Andaman Is. to Japan and Australia to Hawaiian Islands.

***Gymnothorax ruppelliae* (Mc Clelland, 1845)**

(Fig. 117)

1845. *Dalophis ruppelliae* Mc Clelland, *Calcutta J. Nat. Hist.*, 5 : 213.

1986. *Gymnothorax ruppelliae* : Castle & Mc Cosker, in Smith & Heemstra, *Smith's Sea Fishes*, p. 173, fig. 41.23.

Material examined : Rutland (South Andaman), 15.10.1993, 1 ex., 182 mm, Coll : D. V Rao & party, Reg. No. 2439; Outram Is. (Ritchie's Archipelago), 1 ex., 158 mm, Coll : D. V. Rao & party, Reg. No. 2841.

Diagnostic features : Depth 18.2, head 7.9, snout to anus 2.2 in total length; anterior nostrils tubular; uniserial sharp teeth on jaws; two large intermaxillary canines; a row of conical teeth on vomer; dorsal fin origin slightly before the level of gill opening. Body pale brownish-yellow with 19 black rings as wide as pale interspaces, these rings encircling the body posteriorly to anus, some not meeting ventrally on trunk; a dark spot at corner of mouth.

Habitat : Found in shallow reef areas, coral rubble and weeds.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka, to Japan and Australia to Hawaiian Islands.

***Gymnothorax undulatus* (Lacepede, 1803)**

1803. *Muraenophis undulatus* Lacepede, *Hist. Nat. Poiss.*, 5 : 229 & 644, pl. 64, fig. 2.

1986. *Gymnothorax undulatus* : Castle & Mc Cosker, in Smith & Heemstra, *Smith's Sea Fishes*, p. 173, pl. 8, fig. 41.24.

Material examined : Chidiyatapu (South Andaman), 31.7.1992, 2 exs., 270 & 280 mm, Coll : D. V. Rao, Reg. No. 1973.

Diagnostic features : Depth 16.5, head 6.8-7.3 in total length; eye 9.2-10.2 in head. Uniserial sharp teeth on jaws; two canines in the middle of premaxillaries; lower jaw slightly hooked; dorsal fin origin ahead of the level of gill opening. Body light yellow with large close-set, irregular dark reddish brown blotches and spots, the blotches merged to form irregular bars posteriorly, the narrow pale interspaces forming a very irregular reticulum.

Habitat : Found in rock crevices and reef areas.

Distribution : Indo-Pacific, from Red Sea, Port Alfred to southern Mozambique, Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Hawaiian Islands.

Genus *Siderea* Kaup, 1856

Siderea picta (Ahl, 1789)

1789. *Muraena picta* Ahl, *Dissert. de Muraena et Ophichtho*, p. 6 pl. 2.

1986. *Siderea picta* : Castle, in Smith & Heemstra, *Smith's Sea Fishes* , p. 174, fig. 41.27.

Material examined : Rutland (South Andaman), 25.1.1995, 2 exs., 360 mm, Coll : D. V. Rao & party, Reg. No. 2683; Outram Is. (Ritchie's Archipelago), 7.3.1994, 3 exs., 264-272 mm, Coll : D. V. Rao & party, Reg. No. 2684; Narcondam Is. (North Andaman), 14.3.1994, 1 ex., 84 mm, Coll : D. V. Rao, Reg. No. 2685; South Bay (Little Andaman), 23.3.1993, 2 exs., 261 mm, Coll : D. V. Rao, Reg. No. 2686.

Diagnostic features : Depth 14.5-21.2, head 7.5-8.4 in total length; tail equal to body length; teeth in jaws short, uniserial, one tooth on intermaxillary, biserial on vomer. Body white, speckled with black, the dots grouped to form large diffuse spots.

Habitat : Found in shallow reef areas.

Distribution : Indo-Pacific, from east coast of Africa, Seychelles to Lakshadweep, Andaman Is. to Japan, southwards Australia to Marianas.

Genus *Uropterygius* Ruppell, 1838

Key to species

- 1a Teeth 3 rows on jaws, vomerine teeth uniserial posteriorly and biserial anteriorly; body brownish with marbled.....*U. marmoratus*
- 1b Teeth in 2 rows on jaws, vomerine teeth uniserial; body with blotches or uniform 2
- 2a Tail about 3.0 in total length; body with large and small black blotches*U. tigrinus*
- 2b Tail about 2.0 or less in total length; body uniform brown; tip of tail yellow*U. concolor*

Uropterygius concolor Ruppell, 1838

1838. *Uropterygius concolor* Ruppell, *Nave. Wirbe. Fische.*, p. 83

1986. *Uropterygius concolor* : Castle & Mc Cosker, in Smith & Heemstra, *Smith's Sea Fishes* , p. 175, fig. 41.29.

Material examined : Hut Bay (Little Andaman), 20.9.1990, 2 exs., 250-296 mm, Coll : K. V. Raman & party, Reg. No. 1605.

Diagnostic features : Sharp teeth in two rows on jaws; intermaxillary with two depressible fangs; lateral line pore single. Body uniform brown; tip of tail yellow.

Habitat : Found in reef crevices and weeds.

Distribution : Indo-West Pacific, from east coast of India, Andaman Is., Sri Lanka to Philippines and Ryukyu Is.

***Uropterygius marmoratus* (Lacepede, 1803)**

1803. *Gymnothorax marmorata* Lacepede, *Hist. Nat. Poiss.*, 5 : 648.

1980. *Uropterygius marmoratus* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 104, fig. 81.

Material examined : Chidiyatapu (South Andaman), 26.10.1980, 3 exs., 178-220 mm, Coll : H. S. Mehta & party, Reg. No. 2600.

Diagnostic features : Depth 24.0-25.8, head 10.2-11.3, snout to anus 2.3-2.48 in total length; jaws with 3 rows of sharp and slender teeth; intermaxillary with 3 rows of long canine teeth; dorsal and anal fins restricted to rear end of tail. Body yellowish-brown, densely mottled with roundish dark brown and blackish spots about size of eye.

Habitat : Found in shallow water around coral reefs and rocky shores.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan, and Australia to Hawaiian Islands.

***Uropterygius tigrinus* (Lesson, 1829)**

1829. *Ichthyophis tigrinus* Lesson, *Mem. Soc. Hist. Nat. Paris.*, 4 : 399.

1986. *Uropterygius tigrinus* : Castle & Mc Cosker, in Smith & Heemstra, *Smith's Sea Fishes*, p. 175, pl. 7, fig. 41.32.

Material examined : Port Blair (South Andaman), 27.4.1978, 1 ex., 452 mm, Coll : S. Chakrapani, Reg. No. 1607; Ross Is. (South Andaman), 17.2.1989, 1 ex., 395 mm, Coll : H. S. Mehta & party, Reg. No. 1606.

Diagnostic features : Depth 28.3-30.5, head 12.1-13.0, tail about 3.0 in total length; snout rounded; teeth slender and sharp, in two rows, those in front of upper jaw and inner series larger, canine tooth on intermaxillary; uniserial teeth on vomer; tail end pointed. Body yellowish-brown with numerous small and large round yellow edged black spots and blotches; snout and jaw speckled with black.

Habitat : Found in crevices of coral rocks.

Distribution : Indo-Pacific, from Natal to southern Mozambique, Mauritius, coasts of India, Andaman Is. to Sandwich Islands.

Family OPHICHTHIDAE

Body elongate, slender and snake-like, somewhat compressed behind; no scales; pectoral fin present or absent; dorsal fin arises from head to mid-trunk; median fins not reaching to caudal tip which is hard and pointed; teeth uniserial or multiserial. Body plain, spotted or banded.

Key to genera

- 1a Tail tip flexible; caudal ray conspicuous gill opening small, mid-lateral; dorsal fin origin close to anus; no pectoral fins*Muraenichthys*
- 1b Tail tip hard finless point; gill openings elongate, almost ventral; dorsal origin on nape; pectoral fins present 2
- 2a Lips entire; head and trunk equal to or less than tail; body with black rings or saddles 3
- 2b Lower lip entire, upper lip fringed; tail much longer than body; colour uniform*Cirrhimuraena*
- 3a Teeth molariform; pectoral base broad; dorsal origin before pectoral origin*Myrichthys*
- 3b Teeth pointed; pectoral fin base narrow; dorsal fin origin above pectoral origin ...*Leiuranus*

Genus *Cirrhimuraena* Kaup, 1856

* *Cirrhimuraena playfairii* (Gunther, 1870)

1870. *Ophichthys playfairii* Gunther, *Cat. Fish Brit. Mus., London*, p. 76.

1986. *Cirrhimuraena playfairii*: : Mc Cosker & Castle, in Smith & Heemstra, *Smith's Sea Fishes* p. 179, fig. 42.6.

Material examined : Hut Bay (Little Andaman), 22.9.1990, 1 ex., 232 mm, Coll : K. V. Raman & party, Reg. No. 2362.

Diagnostic features : Body moderately robust, compressed behind. Depth 33.2, tail 1.52 in total length; head 13.3 in total and 3.8 in trunk; all teeth slender and sharp in 3 series on jaws; few teeth on intermaxillary; upper lip with a fringe of cilli; dorsal fin origin on nape. Body greenish-brown, lighter below.

Habitat : Found in clean sandy areas near reefs.

Distribution : Indo-Pacific, from Zanzibar, Andaman Is. Hawaiian and Marquesas Islands.

Genus *Leiuranus* Bleeker, 1853

Leiuranus semicinctus (Lay & Bennett, 1839)

1839. *Ophisurus semicinctus* Lay & Bennett, *Zool. CAP Beechey's Voy.*, p. 66.

1986. *Leiuranus semicinctus* : Mc Cosker & Castle, in Smith & Heemstra, *Smith's Sea Fishes* , p. 180, fig. 42.9.

Material examined : Car Nicobar Is. 9.9.1988, 1 ex., 240 mm, Coll : H. S. Mehta & party, Reg. No. 1401.

Diagnostic features : Depth 56.0, head 12.5 in total length; snout pointed, groove on under side of snout; front nostril tubular; sharp teeth in uniserial on jaws; vomer edentate; upper lip entire; pectoral fins present; dorsal origin above pectoral; caudal tip a hard finless point. Body white with 28 black saddles which meet only below tail.

Habitat : Found under coral rocks.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Nicobar Is. to Japan and southwards Australia.

Genus *Muraenichthys* Bleeker, 1853

* *Muraenichthys macropterus* Bleeker, 1857

1857. *Muraenichthys macropterus* Bleeker, *Act. Sci. Indo-Neerl. II. Achtste. Bijdr. Vischfau. Ambon*, p. 91.

1980. *Muraenichthys macropterus* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 123, fig. 101.

Material examined : Rutland Is. (South Andaman), 15.10.1993, 1 ex., 192 mm, Coll : D. V. Rao & party Reg. No. 2364.

Diagnostic features : Body elongate, cylindrical. Depth 32.0, head 7.0 in total length; cleft of mouth reaching beyond eye; dorsal fin origin nearer to gill opening than anus; teeth sub-conical in 2 series, teeth on vomer larger and granular; intermaxillary teeth in semicircular row; caudal fin confluent with dorsal and anal fins; pectoral fins absent. Body pale yellow.

Habitat : Found in shallow sandy coral rubble areas.

Distribution : Indo-West Pacific, from Mozambique, Lakshadweep, Andaman Is. to Japan, southwards Australia, New Caledonia and Marshall Islands.

Genus *Myrichthys* Giard, 1859

Myrichthys colubrinus (Boddaert, 1781)

(Fig. 118)

1781. *Muraena colubrina* Boddaert, in Pallas, *Neue Nord Beytr.*, 2 : 56, pl. 2, fig. 3.

1986. *Myrichthys colubrinus* : Mc Cosker & Castle, in Smith & Heemstra, *Smith's Sea Fishes*, p. 181, fig. 42.13.

Material examined : Rutland Is. (South Andaman), 15.10.1993, 1 ex., 492 mm, Coll : D. V. Rao & party, Reg. No. 2283; Port Blair (South Andaman), 28.6.1994, 1 ex., 513 mm, Coll : Kamla Devi, Reg. No. 2711.

Diagnostic features : Depth 49.5, head 18.5-20.0 in total length; upper lip entire; dorsal fin low; pectoral fin present; teeth blunt, biserial; 1-2 rows of teeth on vomer; dorsal fin origin well before gill

opening; anal fin ends well before dorsal fin end. Body yellowish-white with 28-31 narrow black rings encircling head and body.

Habitat : Found under coral stones.

Distribution : Indo-Pacific, from east coast of Africa to Tuamotu Islands.

Family CONGRIDAE

Body long and compressed; no scales on body; pectoral fins present; dorsal origin over, before or behind pectoral base; median fins confluent with caudal; teeth small, uniserial or multiserial; lateral line present.

Genus *Ariosoma* Swainson, 1838

Ariosoma mauritianum (Pappenheim, 1914)

1914. *Leptocephalus mauritianus* Pappenheim, *Die Fische der deutschen Sudpolar Exped.*, 15(7) : 189, fig .8, pl. 10.

1994. *Ariosoma mauritianum* : Rao, *et al*, *J Andaman Sci. Assoc.*, 10 (1 & 2) : 28.

Material examined : Hut Bay (Little Andaman), 22.9.1990, 2 exs., 210 & 135 mm, Coll : K. V. Raman & party, Reg. No. 2366; Mayabunder (North Andaman), 15.8.1991, 2 exs., 133 & 140 mm, Coll : K. Chandra & party, Reg. No. 2365.

Diagnostic features : D. 165-168; A. 109-112. Depth 15.8-16.0, head 5.0-5.8 in total length; teeth small in 3 rows on upper jaw and 2 rows on lower jaw; an oval patch of short teeth at front of upper jaw and biserial patch on vomer; upper lip with upturned flange; lateral line pores 56-59. Body light brown; fins yellowish with narrow black margin.

Habitat : Found in sandy-mud areas near reefs.

Distribution : Indo-West Pacific, from east coast of Africa, Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan.

Order CLUPEIFORMES

Body almost compressed; dorsal and anal fins without spines; abdomen with keeled scutes along ventral mid-line; jaws not protrusile; gill rakers numerous; ventral fins abdominal; pectoral fins low on body; scales cycloid; lateral line absent.

Family CLUPEIDAE

Body fusiform, sub-cylindrical or strongly compressed; strong abdominal scutes present; mouth terminal; maxilla not reaching past eye; teeth minute or absent; fins without spines; scales deciduous, cycloid; head scaleless; no lateral line; pectoral fins set low on body; caudal fin deeply forked.

Key to genera

- 1a No teeth in jaws 3
- 1b Teeth present in jaws 2
- 2a Belly with scutes; anal rays above 30; anal fin origin just behind dorsal origin ***Pellona***
- 2b Belly without scutes; anal rays 15-18; anal origin far behind dorsal origin ***Dussumieria***
- 3a Gill rakers 42-44 on lower arm of 1st arch ***Amblygaster***
- 3b Gill rakers above 44 on 1st arch 4
- 4a Mouth inferior ***Anodontostoma***
- 4b Mouth terminal 5
- 5a Rear edge of gill opening with 2 fleshy projections, numerous fronto-parietal striae on top of head ***Sardinella***
- 5b Rear edge of gill opening without fleshy projections; no fronto-parietal striae ***Hilsa***

Genus *Amblygaster* Bleeker, 1849*Amblygaster siram* (Walbaum, 1742)

1742. *Clupea siram* Walbaum, *Artedi Pisc.*, 3 : 28.

1984. *Sardinella siram* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 149, fig. 55.

1985. *Amblygaster siram* : Bianchi, *Field Guide to Commercial and Brackish water Fishes of Tanzania*, p. 4.

Material examined : Burmanallah (South Andaman), 30.8.1989, 6 exs., 223-235 mm, Coll : H. S. Mehta & party, Reg. No. 2182; Hut Bay (Little Andaman), 12.3.1992, 2 exs., 163 & 185 mm, Coll : P. T. Rajan, Reg. No. 2183; Kamorta Is. (Nicobar Group), 17.8.1993, 1 ex., 179 mm, Coll : D. V. Rao & party, Reg. No. 2387.

Diagnostic features : D. 14-15; A. 15-16; P. 13; V. 8. Depth 4.2-4.9 in standard length; abdominal scutes with poorly developed keels, 17 pre-pelvic and 13-14 post-pelvic scutes; gill rakers 32-40 on lower arm of first arch; anal fin origin far behind dorsal fin, more than 8 fronto-parietal striae on head. Body blue-green above and silvery on sides with a series of 10-12 golden-green spots.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-West Pacific.

Genus *Anodontostoma* Bleeker, 1849*Anodontostoma chacunda* (Ham.-Buch., 1822)

1822. *Clupandon chacunda* Ham. & Buch., *Fishes of Ganges*, p. 246.

1984. *Anodontostoma chacunda* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 170, fig. 66.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 175 mm, Coll : G. C. Rao & party, Reg. No. 1782; Mayabunder (North Andaman), 15.8.1991, 1 ex., 179 mm, Coll : K. Chandra & party, Reg. No. 1680; Havelock Is. (Ritchie's Archipelago), 20.11.1991, les., 220 mm, Coll : D. V. Rao & party, Reg. No. 1725.

Diagnostic features : D. 17; A. 20; P. 16; V. 8; Ls. 40. Depth 2.5, head 3.3 in standard length, eye 3.3 in head; body deep, oval and compressed, ventral profile rounded; maxilla straight, thin and tip tapering; mouth inferior; last dorsal ray not prolonged as a filament. Body silvery with indistinct brown longitudinal lines along scale rows; a black spot on shoulder.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indian Ocean.

Genus *Dussumieria* Valenciennes, 1847

Key to species

- 1a Maxilla reaching below front margin of eye; a narrow golden lateral band from opercle to base of caudal *D. elopsoides*
- 1b Maxilla not reaching below front margin of eye; no band as in 1a *D. acuta*

Dussumieria acuta Valenciennes, 1847

1847. *Dussumieria acuta* Valenciennes, in Cuv. & Val. *Hist. Nat. Poiss.*, 20 : 467, pl. 606.

1984. *Dussumieria acuta* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 129, fig. 43.

Material examined : Kamorta Is. (Nicobar Group), 17.2.1993, 1 ex., 143 mm, Coll : D. V. Rao & party, Reg. No. 2386.

Diagnostic features : D. 17; A. 14; P. 15; V. 8; Ls. 41. Depth 4.3, head 3.8 in standard length, eye 3.6 in head; body elongate, moderately compressed; belly rounded without scutes; snout acute; origin of anal fin behind dorsal fin; ventral fin origin below middle of dorsal fin; 28 gill rakers on lower arm of first arch. Body metallic blue-green on back, flanks silvery; all fins pale; first pectoral ray and tip of caudal fin dusky.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-Pacific.

Dussumieria elopsoides Bleeker, 1849

(Fig. 119)

1849. *Dussumieria elopsoides* Bleeker, *J. Indi. Arch.*, 3 :

1980. *Dussumieria hasselti* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 45, fig. 26.

Material examined : Havelock Is. (Ritchie's Archipelago), 21.11.1991, 1 ex., 175 mm, Coll : D. V. Rao & party, Reg. No. 2093; Bambooflat (South Andaman), 14.9.1992, 1 ex., 187 mm, Coll : P. T. Rajan, Reg. No. 2089.

Diagnostic features : D. 18-19; A. 16; P. 14-15; V. 8; Ls. 52. Depth 4.02-4.6, head 3.7-4.0 in standard length, eye 3.8-4.2 in head, 1.2-1.3 in snout; body elongate, dorsal and ventral profile evenly convex; snout acute; origin of dorsal mid-way between eye and caudal base; origin of ventral mid-way between pectoral and caudal base. Body bluish on back, silvery below; a golden lateral band from opercle to base of caudal; all fins hyaline.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Genus *Hilsa* Regan, 1917

Hilsa (Tenuulosa) toli (Valenciennes, 1847)

1847. *Alausa toli* Valenciennes, in Cuv. & Val., *Hist. Nat. Poiss.*, 20 : 435.

1991. *Hilsa (Tenuulosa) toli* : Talwar & Jhingran, *Inland Fishes of India and adjacent Countries.*, 1 : 101, fig. 36.

Material examined : Rangat (Middle Andaman), 10.2.1997, 1 ex., 133 mm, Coll : H. S. Mehta & party, Reg. No. 1322.

Diagnostic features: D. 19; A. 18; P. 14; V. 8. Depth 3.15, head 3.7 in standard length, eye 4.5 in head, almost equal to snout; body fusiform; belly with 28 scutes; a distinct notch in upper jaw; fronto-parietal striae weakly developed; preoperculum with an obtuse rounded angle; gillrakers 89 on lower arm of first arch. Body silvery with yellow tinge; a diffuse dark blotch behind opercle; all fins hyaline.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Genus *Pellona* Valenciennes, 1847

Pellona ditchela Valenciennes, 1847

1847. *Pellona ditchela* Valenciennes, in Val. & Cuv., *Hist., Nat. Poiss.*, 20 : 314.

1986. *Pellona ditchela* : Whitehead & Wongratana, in Smith & Heemstra, *Smith's Sea Fishes*, p. 202, fig. 54.7.

Material examined : Shola Bay (South Andaman), 27.4.1978, 1 ex., 142 mm, Coll : Chakrapani & party, Reg. No. 8; Rangat (Middle Andaman), 18.8.1991, 1 ex., 178 mm, Coll : K. Chandra & party, Reg. No. 2327.

Diagnostic features: D. 15; A. 35; P. 16; V. 7; Ls. 39. Depth 2.9, head 3.8 in standard length, eye 3.0 in head, 0.76 in snout; body fairly deep and compressed; belly with sharp keels, 18 pre-pelvic and 9 post-pelvic scutes; lower jaw prominent; upper jaw with toothed hypomaxilla; 26 gill rakers on lower arm of first arch; dorsal fin origin about mid-way of the body; anal origin slightly behind dorsal fin base end; ventral fin slightly in advance of dorsal fin origin. Body brown above, flanks silvery.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-Pacific region.

Genus *Sardinella* Valenciennes, 1847

Key to species

- 1a Body depth below 30% of standard length; tip of caudal fin jet black*S. melanura*
- 1b Body depth 28-40% of standard length; tip of caudal fin not black.....*S. brachysoma*

Sardinella brachysoma Bleeker, 1852

1852. *Sardinella brachysoma* Bleeker, *Verh. Batav. Genoot. Kunst. Wet.*, 24 : 19.

1984. *Sardinella brachysoma* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 139, fig. 47.

Material examined : Diglipore (North Andaman), 26.2.1990, 1 ex., 163 mm, Coll : G. C. Rao & party, Reg. No. 1462.

Diagnostic features : D. 18; A. 19; P. 16; V. 8; Ls. 44. Depth 2.6 and head 4.1 in standard length, eye 3.0 in head; abdominal profile more convex than dorsal profile; belly sharp with keeled scutes, 18 pre-pelvic and 13 post-pelvic scutes; 54 gill rakers on lower arm of first arch; dorsal fin origin slightly before mid point of body; anal fin lying far behind dorsal fin; posterior scales with numerous vertical striae; predorsal median ridge covered by two longitudinal rows of scales. Body blue-green above, flanks silvery.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Sardinella melanura (Cuvier, 1829)

(Fig. 120)

1829. *Clupea melanura* Cuvier, *Regne. Animal.*, 2 : 318

1984. *Sardinella melanura* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 148, fig. 54.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 7 exs., 84-109 mm, Coll : D. V. Rao & party, Reg. No. ; Port Blair (South Andaman), 24.8.1993, 10 exs., 68-94 mm, Coll : D. V. Rao & party, Reg. No. 1632.

Diagnostic features : D. 12; A. 15-16; V. 8. Body slightly compressed; depth 2.6-3.1 in standard length; belly strongly keeled with scutes, 16 pre-pelvic and 13 post-pelvic; 43-51 gill rakers on lower arm of first arch; more than 8 fronto-parietal striae; predorsal scales paired and over-lapping. Colour blue-green above, sides silvery, tips of caudal fin dark black.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Family ENGRAULIDIDAE

Body sub-cylindrical or compressed; snout prominent, projecting in front of lower jaw; mouth inferior; maxilla reaching beyond eye; minute teeth in jaws; fins without spines; gill rakers long and slender; dorsal fin at mid point of body; scales cycloid, deciduous; no lateral line.

Key to genera

- 1a Sharp scutes in front of ventral fin, none behind; anal fin rays below 20; a silvery stripe along sides ***Stolephorus***
- 1b Sharp scutes from gill opening to anus; anal fin rays more than 20; no silvery stripe along sides ***Thryssa***

Genus *Stolephorus* Lacepede, 1803

Stolephorus commersonii Lacepede, 1803

(Fig. 121)

1803. *Stolephorus commersonii* Lacepede, *Hist. Nat. Poiss.*, 5 : 381, pl. 12, fig. 1.

1984. *Stolephorus commersonii* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 188.

Material examined : Rangat (Middle Andaman), 28.8.1986, 2 exs., 90 & 93 mm, Coll : H. S. Mehra & party, Reg. No. 1855; Port Blair (South Andaman), 22.4.1991, 2 exs., 105 mm, Coll : Kamla Devi, Reg. No. 1866; Mayabunder (North Andaman), 11.1.1992, 2 exs., 106 mm, Coll : D. V. Rao & party, Reg. No. 2116; Chidiyatapu (South Andaman), 2.8.1993, 1 ex., 146 mm, Coll : D. V. Rao & party Reg. No. 3045.

Diagnostic features : D. III + 12-14; A. III + 18-20; V. 7. Body cylindrical, belly rounded with 2-4 sharp scutes between pectoral and ventral fins; maxilla long, tip pointed and extending beyond posterior border of preoperculum; isthmus continuous; no silvery plate in front of isthmus; ventral fin reaching beyond dorsal fin origin. Body creamy-white with bright silvery stripe along flanks; a double dark line on back before dorsal fin.

Habitat : Found in coastal waters.

Distribution : Indo -West Pacific, from Tanzania, Gulf of Oman, coasts of India, Andaman Is., Sri Lanka to Thailand and Samoa.

Genus *Thryssa* Cuvier, 1829

Key to species

- 1a Maxilla very long, reaching to ventral or beyond *T. setirostris*
- 1b Maxilla not reaching beyond pectoral 2
- 2a Tip of snout above level of eye centre *T. hamiltonii*
- 2b Tip of snout at level of eye centre 3
- 3a Gill rakers on lower arm of first arch 20-22; maxilla reaching to gill opening ... *T. baelama*
- 3b Gill rackers on lower of first arch 12-16; maxilla reaching to base of pectoral *T. mystax*

Genus *Thryssa* Cuvier, 1829

Thryssa baelama (Forsskal, 1775)

1775. *Clupea baelama* Forsskal, *Descript. Animal*, p. 72.

1973. *Thryssa baelama* : Whitehead, *J. mar. biol. Assoc. India*, 14 (1) : 234.

Material examined : Port Blair (South Andaman), 22.4.1991, 7 exs., 86-129 mm, Coll : Kamla Devi & party, Reg. No. ; 19.11.1992, 8 exs., 80-90 mm, Coll : D. V. Rao, Reg. No. 2118.

Diagnostic features : D. 16; A. 28-31, P. 12-13; V. 7. Origin of anal fin behind dorsal; ventral keels before pectoral without scutes; gill rakers on lower arm of first arch 21-22; abdominal scutes 15, single keeled scute just behind isthmus. Body silvery, back dark; a dark patch on the shoulder; fins hyaline.

Habitat : Found in shallow coastal waters.

Distribution : Indo-West Pacific, from Zanzibar, Tanzania, Red Sea, Mauritius, coasts of India, Andaman Is., Sri Lanka to New Guinea.

Thryssa hamiltonii Gray, 1835

1835. *Thryssa hamiltonii* Gray, *Illust. Ind. Zool. Hrdwicke.*, 2 : pl. 92.

1984. *Thryssa hamiltonii* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 198, fig. 86.

Material examined : Wandoor (South Andaman), 19.8.1992, 2 exs., 187 mm, Coll : D. V. Rao & party, Reg. No. 2322.

Diagnostic features : D. 13-15; A. 37; P. 12-13, V. 7. Pre-pelvic scutes 16-18 and post-peclvic scutes 10-12; snout bluntly rounded; maxilla extending to gill opening; gill rakers 13-15 in lower arm of first arch. Body silvery, back brownish; dark area on shoulder; fins hyaline.

Habitat : Found in shallow coastal waters.

Distribution : Indo-West Pacific, from Pakistan, coasts of India, Andaman Is., Sri Lanka to East Indies to China Sea.

***Thryssa mystax* (Schneider, 1801)**

1801. *Clupea mystax* Schneider, *Syst. Ichth.*, p. 426, pl. 83.

1984. *Thryssa mystax* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 201, fig. 89.

Material examined : Rangat (Middle Andaman), 28.8.1986, 2 exs., 193 mm, Coll : H. S. Mehta & party, Reg. No. 1858; 19.8.1991, 1 ex., 136 mm, Coll : K. Chandra & party, Reg. No. 1781.

Diagnostic features : D. 13-15; A. 35-38; P. 12-13; V. 7. Body compressed with 16-18 pre-pelvic and 8-12 post-pelvic keeled scutes; snout bluntly rounded, its tip at level of eye centre; maxilla long and reaching to pectoral fin base; gill rakers 14-15 on lower arm of first arch. Body silvery, back brown; a dark area on shoulder.

Habitat : Found in shallow coastal waters and creeks.

Distribution : Indo-West Pacific, from Pakistan, coasts of India, Andaman Is., Sri Lanka to East Indies

***Thryssa setirostris* (Broussonet, 1782)**

1782. *Clupea setirostris* Broussonet, *Ichthyol.*, pl. 2.

1984. *Thryssa setirostris* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 204, fig. 91.

Material examined : Rangat (Middle Andaman), 28.8.1986, 11 exs., 95-183 mm, Coll : H. S. Mehta & party, Reg. No. 1856; Mayabunder (North Andaman) 11.1.1992, 2 exs., 120 mm, Coll : D. V. Rao, Reg. No. 1857; Port Blair (South Andaman), 19.11.1992, 7 exs., 73-85 mm, Coll : D. V. Rao & party, Reg. No. 2117; 22.4.1991, 2 exs., 98 & 119 mm, Coll : Kamla Devi, Reg. No.

Diagnostic features : D. 13-15; A. 35-37; P. 12-13; V. 7. Body fairly compressed, belly with 16-18 pre-pelvic and 9-10 post-pelvic scutes; snout bluntly rounded; maxilla filamentous at tip, reaching ventral fin origin. Body silvery, back brown; a faint dark area on shoulder, all fins hyaline.

Habitat : Found in shallow coastal waters and creeks.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa, coasts of India, Andaman Is., Sri Lanka to China Sea and Queensland.

Family CHIROCENTRIDAE

Body much elongate and highly compressed; no abdominal scutes; two large canines at front of upper jaw, pointing forwards; small canines behind them and in lower jaw, no spines in fins; single dorsal fin placed behind mid point of body; ventral fins very small, located between pectoral base and anal origin; caudal fin deeply forked; scales small, cycloid and deciduous; lateral line absent.

Genus *Chirocentrus* Cuvier, 1816

Chirocentrus dorab (Forsskal, 1775)

(Fig. 122)

1775. *Clupea dorab* Forsskal, *Descript. Animal*, p. 7..

1986. *Chirocentrus dorab* : Whitehead, in Smith & Heemstra, *Smith's Sea Fishes*, p. 207, fig. 56.1.

Material examined : Writmyo (South Andaman), 4.2.1989, 1 ex., 300 mm, Coll : G. C. Rao & party, Reg. No. 1591; Port Blair (South Andaman), 19.11.1992, 1 ex., 340 mm, Coll : D. V. Rao & party, Reg. No. 2170.

Diagnostic features : D. V, 12-13; A. III, 28-31; P. I, 14; V. I. 6. Depth 6.4, head 5.7 in standard length, eye 5.0 in head; body elongate, strongly compressed; edge of belly sharp; scales very small, easily shed; ventral fins very small. Body deep blue-green, shading to brassy-gold to bright silvery on flanks; tip of dorsal fin and front of anal fin black; caudal fin yellow.

Habitat : Found in shallow coastal waters.

Distribution : Widely distributed in Indo-Pacific.

Order GONORHYNCHIFORMES

Body compressed, mouth small, no teeth in jaws; head naked maxilla not reaching past centre of eye; eye covered with skin; dorsal and anal fins with basal scaly sheath; no spines in fins; well developed axillary scales at base of pectoral and ventral fins; pectoral fin base horizontal.

Family CHANIDAE

Chanos chanos (Forsskal, 1775)

1775. *Mugil chanos* Forsskal, *Descript. Animal* p. 74.

1986. *Chanos chanos* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 210, fig. 58.1.

Material examined : Chidiyatapu (South Andaman), 23.8.1987, 1 ex., 95 mm, Coll : D. V. Rao & party, Reg. No. 1957; North Reef Is. (North Andaman), 26.3.1993, 1 ex., 335 mm, Coll : G. C. Rao & party, Reg. No. 2232.

Diagnostic features : D. 13-14; A. 8-9; P. 15; V. 11; Ll. 77-79. Depth 4.0-4.6, head 3.1-3.4 in standard length; eye sub-cutaneous, 3.3-3.6 in head; body compressed and torpedo shaped; head naked; no teeth; dorsal and anal fins with basal scaly sheath; pectoral and ventral fins with large axillary scales; dorsal fin origin mid way between tip of snout and base of caudal. Body brilliant silver, darker dorsally; caudal and anal fin margins dusky.

Habitat : Found in creeks and shallow coastal waters.

Distribution : Indo-West Pacific, from east coast of Africa, Gulf of Oman, Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan and New Zealand to Hawaii Islands.

Order CYPRINIFORMES

Small to moderate sized fishes; mouth protractile and toothless; barbels present or absent; single dorsal fin with no spines; adipose fin absent; ventral fins abdominal; body with cyloid scales; head scaleless; lateral line present; branchiostegal rays 3.

Family CYPRINIDAE

Body compressed, abdomen rounded or with sharp edge; mouth terminal; no teeth in jaws; lips thin; barbels present or absent; pharyngeal teeth well developed in one to three rows; anal fin short based; head naked.

Genus *Parluciosoma* Hawes, 1980*Parlucisoma daniconius* (Hamilton-Buchanan, 1822)

1822. *Cyprinus daniconius* Hamilton-Buchanan, *Fishes of Ganges* : 327, 329, pl. 15, fig. 89.

1991. *Parluciosoma daniconius* : Talwar & Jhingran, *Freshwater Fishes of India and Adjacent Countries*, 1 : 382, fig. 136.

Material examined : Diglipur (North Andaman), 22.5.1989, 5 exs., Coll : H. S. Mehta & party, Reg. No. 1427.

Diagnostic features : D. 9; A. 7; P. 14; V. 9; Ll. 32-34; Ltr. $4\frac{1}{2} + 1 + 2\frac{1}{2}$. Body oblong and compressed; mouth small; lips simple; lateral line almost complete. Body olive, sides and belly silvery; a distinct black stripe from eye to base of caudal fin, edged above and below by a thin golden line; a dark narrow stripe above anal fin.

Habitat : Found in pools and streams.

Distribution : Pakistan, India, Andaman Is. Sri Lanka, Bangladesh; Burma and Mekong.

Order SILURIFORMES

Body elongate and compressed, naked or covered with bony plates; eyes small, majority of the fishes have barbels extending from each side of the upper and lower jaws; spines often present at front of the dorsal and pectoral fins; no ventral fin spine; adipose dorsal fin usually present; pectoral fin low in position.

Family CLARIIDAE

Body cylindrical and elongate; head broad and flattened; eyes small; anterior nostrils tubular behind upper lip; posterior nostrils rounded slits behind nasal barbels; four pairs of barbels; labrynthic organ well developed or vestigial; dorsal fin base very long, not preceded by spine; no adipose fin; pectoral with strong spine; skin naked.

Genus *Clarias* Scopoli, 1777

Clarias batrachus (Linnaeus, 1758)

1758. *Silurus batrachus* Linnaeus, *Syst. Nat.*, ed. 1, 10 : 305.

1991. *Clarias batrachus* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 685, fig. 218

Material examined : Tushanbad (South Andaman), 9.1.1985, 2 exs., 105 mm, Coll : Kamla Devi, Reg. No. 1349; Aniket (South Andaman), 8. 12. 1977, 1 ex., 116 mm, Coll : M. Sil, Reg. No. 1327; Manpur (South Andaman), 12.1.1986, 6 exs., 97-139 mm, Coll : Kamla Devi, Reg. No. 1335.

Diagnostic features : D. 70-76; A. 45-58; P, I, 8-11; V. 6. Body elongate, head compressed; occipital process narrow, mouth terminal with villiform teeth on jaws; vomerine teeth villiform in a crescentic band or two pyriform patches; barbels four pairs, the maxillary pair extending beyond base of pectoral fin and the nasal pair extend to gill openings; dorsal fin inserted anterior to tip of pectoral fins; pectoral spine strong and serrated on both edges. Body greenish-blue, flanks and belly pinkish with numerous pale to white spots on flanks; dorsal fin yellowish with red margin.

Habitat : Found in pools, ponds and rivers.

Distribution : Pakistan, India, Andaman Is., Sri Lanka, Burma to Philippines.

Family HETEROPNEUSTIDAE

Body elongate and compressed, head flat; dorso-lateral side covered with osseous plates; mouth small; four pairs of barbels; air-sac elongated; dorsal fin without spine; adipose fin absent; anal fin extremely long; pectoral fin with strong spine; body naked.

Genus *Heteropneustes* Muller, 1840

Heteropneustes fossilis (Bloch, 1794)

1794. *Silurus fossilis* Bloch, *Nat. Ausland. Fische.*, 8 : 46, pl. 370, fig. 2.

1991. *Heteropneustes fossilis* : Talwar & Jhingran, *Inland fishes of India and Adjacent Countries*, 2 : 689, fig. 219.

Material examined : Tushanabad (South Andaman), 9.1.1985, 8 exs., 115-136 mm, Coll : Kamla Devi, Reg. No. 1328; Manpur (South Andaman), 12.1.1986, 6 exs., 95-122 mm, Coll : Kamla Devi, Reg. No. 1334; Caddlegunj (South Andaman), 29.11.1978, 2 exs., 89 mm, Coll : M. Sil, Reg. No. 1339; Wandoor (South Andaman), 11.8.1978, 2 exs., 115 mm, Coll : M. K. Dev Roy, Reg. No. 1341; Diglipur (North Andaman), 22.5.1989, 1 ex., 126 mm, Coll : H. S. Mehta & party, Reg. No. 1433.

Diagnostic features : D. 6-7; A. 65-68; P. I, 7; V. 6. Occipital process not extending to base of dorsal fin; four pairs of barbels; pectoral spine strong and serrated; anal fin separated by a distinct notch from caudal fin. Body dark purplish-brown above, lighter below with two lateral yellowish bands.

Habitat : Found in ponds, swamps and rivers.

Distribution : Pakistan, India, Andaman Is., Sri Lanka, Bangladesh to Thailand.

Family PLOTOSIDAE

Body elongate, tapering posteriorly without scales and bony plates; 2nd dorsal, caudal and anal fins confluent; 1st dorsal and pectoral fins with strong serrated spine; 4 pairs of barbels; teeth present on upper jaw.

Genus *Plotosus* Lacepede, 1803

Plotosus lineatus (Thunberg, 1787)

1787. *Silurus lineatus* Thunberg, *Museum Nat. Acad. Upsaliensis*, p. 31.

1986. *Plotosus liniatus* : Goman, in Smith & Heemstra, *Smith's Sea Fishes*, p. 213, pl. 10.

Material examined : Mayabunder (North Andaman), 19.3.1993, 6 exs., 140-152 mm, Coll : G. C. Rao & party, Reg. No. 2926; Port Blair (South Andaman), 31.7.1993, 4 exs., 142-145 mm, Coll : D. V. Rao & party, Reg. No. 2927; Chidiyatapu (South Andaman), 21.8.1993, 8 exs., 125-160 mm, Coll : D. V. Rao & party, Reg. No. 2923; 24.9.1994, 6 exs., 140-160 mm, Coll : D. V. Rao & party, Reg. No. 2924; Havelock Is. (Ritchie's Archipelago), 18.9.1993, 8 exs., 110-130 mm, Coll : D. V. Rao & party, Reg. No. 2925; Katchal Is. (Nicobar Group), 13.2.1993, 12 exs., 62-68 mm, Coll : D. V. Rao & party, Reg. No. 2285.

Diagnostic features : D. I, 4 + procurrent c 84-109; A. 63-79; P, I, 10-12; V. 10-12. Body elongate, tapering to a point posteriorly; no scales on body; dorsal, anal and caudal fins confluent; 4 pairs of nasal barbels reach hind border of eye. Body brownish-black above, whitish below with 2-3 light yellowish stripes on sides.

Habitat : Found in packed groups in shallow reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa, coasts of India, Andaman Is. Indonesia to Japan and Australia to Samoa.

Order AULOPIFORMES

Body slender, round to slightly compressed; fins without spines; single dorsal fin; anal fin located at rear quarter of body; ventral fins below or in front of dorsal fin; adipose dorsal present; scales cycloid, large and deciduous.

Family SYNODONTIDAE

Body fusiform and slender; two nostrils, anterior with dermal flap; mouth large with pointed caniniform teeth in jaws; fins with branched and unbranched rays; no spines in fins; caudal fin forked; ventral with 8-9 rays.

Key to genera

- 1a Ventral rays 8; primary caudal rays without scales; palatine teeth in single band on each side 2
- 1b Ventral rays 9; procurent and primary caudal rays with scales; palatine teeth in double band*Saurida*
- 2a Head not depressed; anal fin base longer than dorsal fin base; procurent caudal rays with scales*Trachinocephalus*
- 2b Head depressed; anal fin base shorter than dorsal base; procurent and primary caudal rays without scales*Synodus*

Genus *Saurida* Valenciennes, 1849

Key to species

- 1a Dorsal rays 9-11; prominent dark blotches on dorso-lateral part of body; no dark spots along upper edge of caudal fin*S. gracilis*
- 1b Dorsal rays 11 or above; colour not as in 1a 2
- 2a Lateral line scales 48-50; a series of dark spots along front edge of dorsal and upper edge of caudal fin*S. undosquamis*
- 2b Lateral line scales above 55; no spots along dorsal and caudal fin edges*S. tumbli*

Saurida gracilis (Quoy & Gaimard, 1824)

(Fig. 123)

1824. *Saurus gracilis* Quoy & Gaimard, *Voy. Uranie. Zoolgie.*, p. 224.

1986. *Saurida gracilis* : Cressey, in Smith & Heemstra, *Smith's Sea Fishes*, p. 271, fig. 79.2.

Material examined : Hut Bay (Little Andaman), 14.9.1990, 1 ex., 180 mm, Coll : K. V. Raman & party, Reg. No. 1859; Bambooflat (South Andaman), 15.10.1992, 3 exs., 132-160 mm, Coll : P. T. Rajan, Reg. No. 2144; Rutland Is. (South Andaman), 16.10.1993, 1 ex., 116 mm, Coll : D. V. Rao & party, Reg. No. 2730; Kamorta Is. (Nicobar group), 17.2.1993, 1 ex., 197 mm, Coll : D. V. Rao & party, Reg. No. 2305.

Diagnostic features : D. 10-11; A. 9; P. 12-13; V. 9; Ll. 48-51; Ltr. $3\frac{1}{2}$ - $4\frac{1}{2}$. Anterior nostril flap large; small teeth on vomer; minute teeth on tongue; auxillary scale of pectoral fin short. Body brownish-yellow above, silvery below with prominent diffuse blackish blotches dorsally and laterally on posterior half of body; all fins with spots and stripes.

Habitat : Found burry themselves in sand around reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman & Nicobar Is., Sri Lanka to Japan and eastwards to Hawaiian Islands.

***Saurida tumbil* (Bloch, 1795)**

1795. *Salmo tumbil* Bloch, *Nat. Ausland Fische.*, 9 : 112, pl. 430.

1984. *Saurida tumbil* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 284, fig. 116.

Material examined : Mayabunder (North Andaman), 15.8.1991, 1 ex., 235 mm, Coll : K. Chandra & party, Reg. No. 1677.

Diagnostic features : D. 13; A. 10; P. 14; V. 9; Ll. 58. Mouth large; teeth in jaws in several rows; pectoral fin reaching to level of ventral fin; auxillary scale of pectoral fin long and pointed. Body brownish above, lower sides and belly white; mottled with faint dark cross bands on back, stomach white.

Habitat : Found around coral reefs and open flats.

Distribution : Indo-West Pacific, from Tanzania, Pakistan to coasts of India, Andaman Is., Sri Lanka to China Sea.

***Saurida undosquamis* (Richardson, 1848)**

1848. *Saurus undosquamis* Richardson, *Zool. Erebus. and Terror Fishes* p. 138, pl. 51, fig. 1-6.

1986. *Saurida undosquamis* : Cressey, in Smith & Heemstra, *Smith's Sea Fishes*, p. 271, fig. 79.3.

Material examined : Havelock Is. (Ritchies Archipelago), 22.11.1991, 2 exs, 170 & 185 mm, Coll : D. V. Rao Reg. No. 1752; Bambooflat (South Andaman), 26.11.1992, 1 ex., 210 mm, Coll : P. T. Rajan, Reg. No. 2115.

Diagnostic features : D. 12-13; A. 9-11; P. 14; V. 9; Ll. 48-50. Several rows of slender, pointed teeth in jaws, palatine teeth in two pairs of bands; pectoral fin extending beyond ventral fin base. Body brownish-grey, lighter below with a series of fairly distinct 8-9 blotches along lateral line; a series of dark spots along front edge of dorsal and upper edge of caudal fin; stomach black.

Habitat : Found on reefs and sandy bottoms in shallow waters.

Distribution : Indo-West Pacific, from east coast of Africa, coasts of India, Andaman Is. Indonesia to Japan and Australia.

Genus *Synodus* Gronow, 1763

***Synodus variegatus* Lacepede, 1803**

(Fig. 124)

1803. *Synodus variegatus* Lacepede, *Hist. Nat. Poiss.*, 5 : 157.

1986. *Synodus variegatus* : Cressey, in Smith & Heemstra, *Smith's Sea Fishes*, p. 273, pl. 11.

Material examined : Kamorta Is. (Nicobar Group), 11.11.1989, 2 exs., 186 mm, Coll : H. S. Mehta & party, Reg. No. 1541; Port Blair (South Andaman) 30.7.1991, 2 exs., 117 & 123 mm, Coll : D. V. Rao, Reg. No. 1831; Bambooflat (South Andaman), 26.9.1992, 1 ex., 156 mm, Coll : P. T. Rajan, Reg. No. 2114; Rutland Is. (South Andaman), 16.10.1993, 1 ex., 108 mm, Coll : D. V. Rao & party, Reg. No. 2731.

Diagnostic features : D. 12-13; A. 9-10; P. 11-12; V. 8; Ll. 58-61; Ltr. $5\frac{1}{2}/7$. No scales on cheek, and behind mouth; anterior nostril with dermal flap; procurent and primary caudal rays without scales. Body light greenish-white with a series of 8-9 dark brown to red saddle-like blotches; a broad mid-lateral dark stripe linking lateral row of blotches; head with dark spots; jaws barred red; dorsal, pectoral and caudal fins barred.

Habitat : Found around reefs and on live coral beds in shallow waters.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is. to Japan, east to Hawaiian Islands.

Genus *Trachinocephalus* Gill, 1862

Trachinocephalus myops (Forster, 1801)

1801. *Salmo myops* Forster, in Bloch & Sch., *Syst. Ichth.*, p. 421.

1986. *Trachinocephalus myops* : Cressey, in Smith & Heemstra, *Smith's Sea Fishes*, p. 273, pl. 11, fig. 79.10.

Material examined : Hut Bay (Little Andaman), 9.9.1990, 4 exs., 145-155 mm, Coll : K. V. Raman & party, Reg. No. 1640; Kamorta Is. (Nicobar Group), 11.11.1989, 3 exs., 182-196 mm, Coll : H. S. Mehta & party, Reg. No. 1542.

Diagnostic features : D. 11-12; A. 16; P. 11-12; V. 8; Ll. 55-56; Ltr. $3\frac{1}{2}/5\frac{1}{2}$. Interorbital deeply concave; snout very short, equal to eye diameter; eye close to anterior end of upper jaw; anal fin base distinctly longer than dorsal fin base; pectoral fin rather small. Body greenish-brown above, belly silvery, with alternating pale blue and yellow stripes; an oblique black spot at upper end of gill opening; fins pale yellow.

Habitat : Found on sandy bottom near reefs in shallow waters.

Distribution : Atlantic and Indo-Pacific.

Order GADIFORMES

Ventral fins inserted below or front of pectorals; no true spines in the fins; pre-maxilla forms the entire margin of upper jaw; pectoral fins lateral; caudal fin reduced; scales cycloid; two nostrils on each side of head.

Family MACROURIDAE

Head large; tail long and tapers to a point; no caudal fin; two dorsal fins; dorsal and anal continuous to end of tail; ventrals thoracic; chin barbel present; snout protruding, armed with spiny scutes; mouth inferior; branchiostegal rays 6-8.

Genus *Coelorinchus* Giorin, 1809*Coelorinchus flabellispinis* (Alcock, 1894)

1894. *Macrurus (Coelorynchus) flabellispinis* Alcock, *J. Asiat. Soc. Bengal.* 62(2) : 123.

1986. *Coelorinchus flabellispinis* : Iwamotu, in Smith & Heemstra, *Smith's Sea Fishes*, p. 334, fig. 93.9.

Material examined : Port Blair (South Andaman), 3.6.1993, 1 ex., 296 mm, Coll : S. Dey, Reg. No. 2359.

Diagnostic features : D. II + 9; D. 114; A. 93; p. 17; V. 7. Head deeper and broader than body; underside of head scaled; eye 5.1 in head and less than snout length; snout sharply pointed; nostrils in a large pit; mouth quite inferior; small and slender barbel on chin; sub-orbital ridge extending to pre-opercle; spinules on the scales keel-like; outer ventral ray prolonged. Body uniformly brown and light-blue over abdomen; mouth and gill cavity dusky.

Habitat : Found in deep waters.

Distribution : Indian ocean, from east coast of Africa, Lakshadweep, coasts of India, Andaman Is., and Sumatra.

Order OPHIDIIFORMES

Body almost elongate; small scales present or absent; dorsal and anal fins single, low with long bases, may be joined to caudal fin; ventral fin with 1 or 2 rays, inserted well anterior to base; no spines in fins.

Family OPHIDIIDAE

Body elongate and compressed; dorsal and anal fins low with long bases, joined to caudal fin; barbels present or absent on chin; ventral fins absent or with 1 or 2 slender rays; supra-maxilla present; lateral line present.

Key to Genera

- 1a No barbels on chin; dorsal and anal fins separated from caudal; small opercular spine present *Dinematichthys*
- 1b Barbels present on chin and snout; dorsal and anal fins confluent with caudal; no opercular spine *Brotula*

Genus *Brotula* Cuvier, 1829*Brotula multibarбата* Temminck & Schlegel, 1846

1846. *Brotula multibarбата* Temminck & Schlegel, *Ph. Fr. Van. Siebold Fauna Japonica.* pt. X-XIV, p.251, pl. III.

1986. *Brotula multibarбата* : Nielson & Cohen, in Smith & Heemstra, *Smith's Sea Fishes*, p. 346, fig. 96.3.

Material examined : Englis Is. (Ritchie's Archipelago), 4.3.1996, 1 ex., 83 mm, Coll : D.R.K. Sastry & party, Reg. No. 3035.

Diagnostic features : D. 121; A. 98; P.24; V.2. Body elongate; dorsal and anal fins confluent with caudal; barbels present on chin and snout. Body dusky-brown; dorsal and anal fins with narrow sub-marginal band.

Habitat : Found under coral rocks in shallow areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, coasts of India, Andaman Is. to Australia.

Genus *Dinematichthys* Bleeker, 1855

Dinematichthys ilucoeteoides Bleeker, 1855

1855. *Dinematichthys ilucoeteoides* Bleeker, Nat. Tijds. Ned. Indie., 8 : 319.

1951. *Dinematichthys ilucoeteoides* : De Beaufort & Chapman, *Fishes of Indo-Australian Archipelago*, 9 : 438, fig. 79.

Material examined : Port Blair (South Andaman), 14.9.1993, 1 ex., 52 mm, Coll : D.V. Reg. No. 2488; Outram Is. (Ritchie's Archipelago), 1 ex., 58 mm, Coll : D. V. Rao & party, Reg. No. 2594.

Diagnostic features : D. 83-85; A, 64-66; P. 21-23; V. 1. Body and sides of head covered with small scales; opercular spine present; dorsal fin origin above the middle of pectoral; anal fin close to mid-length of body; ventral fin ray filamentous. Colour brilliant orange-yellow.

Habitat : Found in deep cracks and crevices of reefs.

Distribution : Indo-West Pacific, from Mauritius Is., Andaman Is., Indonesia to Australia, New Zealand to Samoa.

Family CARAPIDAE

Body oblong, eel-like or cylindrical; posterior region tapering; tail slender; mouth small; teeth on jaws and palate; supra-maxilla absent; dorsal and anal fins continuous with caudal; scaleless. Many species live within the body cavity of starfishes, sea-cucumbers or molluscs.

Genus *Carapus* Rafinesque, 1810

Carapus homei (Richardson, 1844)

1844. *Oxybeles homei* Richardson, *Voy. Erebus and Terror. Fishes.*, p. 74.

1986. *Carapus homei* : Olney & Markle, in Smith & Heemstra, *Smith's Sea Fishes*, p. 352, fig.97.2.

Material examined : Mayabunder (North Andaman), 10.1.1992, 1 ex, 89 mm, Coll : D.V. Rao, Reg. No. 1965.

Diagnostic features : Depth 14.8, head 8.0 in total length; eye 4.4 in head; body scaleless; eel-like, tapering to a long, slender tail; small canines at front of upper jaw; dorsal fin very low, lower

than anal fin; pectoral rays 19; vent anterior to pectoral base; no ventral fins. Body translucent; silvery spot between eye and maxilla.

Habitat : Lives in coelom of Sea-cucumber *Stichopus* sp.

Distribution : Indo-Pacific, from Zanzibar to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan, Australia to Hawaiian Islands.

Order LOPHIIFORMES

Body elongate and somewhat laterally compressed; head large, mouth oblique to vertical; teeth small, villiform to large and fang-like; first ray of spinous dorsal on head and transformed into illicium; gill openings small, tube-like; pectoral base elongate and leg-like; skin spinulose to naked, often with cutaneous filaments or flaps.

Family ANTENNARIIDAE

Body short, globose and slightly compressed; eyes very small; mouth large, oblique, with numerous small villiform teeth; first dorsal spine modified into a slender 'illicium', esca well developed; 2nd and 3rd spines free from soft dorsal; soft dorsal covered by thick skin; pectoral fin base elongate, and limb-like; skin spinous or naked, usually with numerous filaments or flaps; body pattern highly variable.

Key to Genera

- 1a Skin spinulose (rough); pectoral base broadly connected to body ***Antennarius***
- 1b Skin smooth, with membranous filaments and flaps; pectoral with narrow limb-like base ***Histrio***

Genus *Antennarius* Daudin, 1816

Key to species

- 1a Esca a small spherical bulb; 2nd dorsal spine not connected to head membrane; dorsal and anal joined to caudal ***A. coccineus***
- 1b Esca a small tuft of appendages; second dorsal spine connected to head by thick spiny skin; dorsal and anal separate from caudal ***A. commersoni***

****Antennarius coccineus* (Lesson, 1831)**

1831. *Chironectes coccineus* Lesson, *Voy. Coquille. Poiss.*, p. 143, pl. 16, fig.1.

1986. *Antennarius coccineus* : Pietsch, in Smith & Heemstra, *Smith's Sea Fishes*, p. 366, pl. 13, fig. 102.1.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 1 ex., 51 mm, Coll : D. V. Rao & party, Reg. No. 2930.

Diagnostic features : D. I + I + I, 12; A. 7; P.10; V. 5. Depth and head 1.45 in standard length; eye 8.5 in head and about equal to snout length; first dorsal spine as long as second spine; esca globular; no distinct caudal peduncle; cutaneous filaments present on sides of head and body. Colour yellow with black spots, more on cheeks and opercular region; a dark spot at the base of posterior dorsal rays.

Habitat : Found in shallow reefs and rocks among weeds.

Distribution : Indo-Pacific, from Red Sea, coasts of Africa to Lakshadweep, Andaman Is., Mauritius, Cocos-Keeling, Indonesia to Japan, and Australia to Hawaiian Islands.

***Antennarius commersoni* (Latreille, 1804)**

(Fig. 125)

1804. *Lophius commersoni* Latreille, *Dict. Hist. Nat.*, 24 : 73.

1980. *Antennarius chironectes* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 705, fig. 602.

1986. *Antennarius commersoni* : Pietsch, in Smith & Heemstra, *Smith's Sea Fishes*, p. 367, pl. 13, fig. 102.2.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 1 ex., 80 mm, Coll : D.V. Rao & party, Reg. No. 2438.

Diagnostic features : D. I + I + I, 12; A.8; P.10; V.6. Depth 1.6, head 1.8 in standard length; eye 11.0, about 2.0 in snout; first dorsal spine longer than second spine; caudal peduncle distinct. Colour light-brownish yellow with scattered small dark spots; dark basi-dorsal and basi-anal spots present; tips of pectoral and ventral rays white.

Habitat : Found in shallow reefs and rocks among weeds.

Distribution : Indo-Pacific, from Red Sea, Islands in the Western Indian Ocean, coasts of India, Andaman Is., Sri Lanka, Indonesia to Hawaiian Islands.

Genus *Histrio* Fisher, 1813

***Histrio histrio* (Linnaeus, 1758)**

1758. *Lophius histrio* Linnaeus, *Syst. Nat.* ed. 10, p. 237.

1993. *Histrio histrio* : Rajan *et al*, *J. Andaman Sci. Assoc.*, 9(1 & 2) : 103.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 1 ex., 103 mm, Coll : D. V. Rao & party, Reg. No. 2496.

Diagnostic features : D. I + I + I, 12; A. 7; P. 10; V. 5. Depth 1.5, head 2.2 in standard length, eye 9.0 in head, 1.8 in snout; skin smooth with membranous flaps; first dorsal spine slender about half length of second spine with bulbous tip; two dermal cirri on dorsal mid-line of snout just in front of base of illicium; last two dorsal rays forked; pectoral fin with narrow limb-like base; caudal peduncle distinct. Body yellowish-grey with irregular blackish bands on head, body and fins; belly uniform yellow; small white spots scattered on body and fins.

Habitat : Associated with floating *Sargassum* sp. around reefs.

Distribution : All tropical and sub-tropical Oceans.

Order CYPRINODONTIFORMES

Body fusiform, compressed, elongate or moderately elongate; opercular bones without spines; single dorsal fin; both dorsal and anal fins inserted on rear half of body; no spines in fins; upper or both jaws extremely elongate; branchiostegal rays 4-15.

Family EXOCOETIDAE

Body elongate, broadly cylindrical, usually flattened ventrally; snout blunt, mouth small; jaws short, the upper rounded; teeth present or absent; nasal organ a pit with lobate tentacle; single dorsal fin; pectoral fins very long, extending beyond dorsal fin origin; caudal fin forked, usually lower lobe longer than upper; lateral line runs along ventral margin; scales cycloid.

Genus *Cypselurus* Swainson, 1839

Key to Species

- 1a No palatine teeth; predorsal scales 28-30 *C. furcatus*
- 1b Palatine tooth patch long and club-shaped; predorsal scales 24-26 *C. oligolepis*

Cypselurus furcatus (Mitchill, 1815)

1815. *Exocoetus furcatus* Mitchill, *Trans. Lit. Philo. Soc., New York*, 10 : 449, pl. 5.

1994. *Cypselurus furcatus* : Rao *et al*, *J. Andaman Sci. Assoc.*, 10 (1 & 2) : 28.

Material examined : Nancowry Is. (Nicobar Group), 10.2.1993, 2 exs., 249 mm, Coll : D. V. Rao & party, Reg. No. 2335.

Diagnostic features : D. 12; A. 9; P. 15; V. 6; Ll. 49. Depth 5.2, head 3.98 in standard length; no palatine teeth; anal fin origin below 6th dorsal ray; ventral fin reaching past middle of anal rays; predorsal scales 29-30. Body dark iridescent blue dorsally, silvery white ventrally; pectoral fin dark with pale margin, the central portion crossed by pale stripe; dorsal fin colourless; caudal fin dusky.

Habitat : Found in off shore waters.

Distribution : Wide spread in Indo-Pacific region.

Cypselurus oligolepis (Bleeker, 1866)

1866. *Exocoetus oligolepis* Bleeker, *Nat. Tijds. Dierk.*, 3 : 109.

1980. *Cypselurus oligolepis* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 146, fig. 124.

Material examined : Mayabunder (North Andaman), 9.1.1992, 3 exs., 181-185 mm, Coll : D. V. Rao, Reg. No. 2336.

Diagnostic features : D. 12; A. 9; P. 5; V. 6; Ll. 43-45. Depth 4.82-5.0, head 3.75-3.8 in standard length; palatine tooth patch long and club-shaped; teeth in jaws tricuspid; predorsal scales 24-26. Body bluish-brown above, silvery white below; pectoral fin black, tip of fin hyaline; dorsal fin hyaline, anterior two rays dusky; caudal fin dusky.

Habitat : Found in off shore waters.

Distribution : Indo-West Pacific, from Gulf of Oman, Zanzibar, Lakshadweep, Andaman Is. to China, Solomon and Tahiti Islands.

Family HEMIRAMPHIDAE

Body elongate and almost rounded; upper jaw short and usually triangular; lower jaw prolonged; teeth in several rows, tricuspid or unicuspid; nasal organ in pit; dorsal and anal fins posterior in position; no spines in fins; ventral fins abdominal in position; lateral line along the ventral margin of body; caudal fin forked or emarginate.

Key to Genera

- 1a Nasal papillae elongate and pointed, strongly projecting beyond nasal fossa; caudal fin rounded or truncate with longest rays in middle *Zenarchopterus*
- 1b Nasal papillae rounded, not projecting from margin of nasal fossa; caudal fin emarginate or deeply forked 2
- 2a Preorbital ridge absent; upper jaw scaleless *Hemiramphus*
- 2b Preorbital ridge present; upper jaw covered with scales *Hyporhamphus*

Genus *Hemiramphus* Cuvier, 1816

Hemiramphus far (Forsskal, 1775)

1775. *Esox far* Forsskal, *Descript. Animal*, p. 67.

1986. *Hemiramphus far* : Collett, in Smith & Heemstra *Smith's Sea Fishes*, p. 389, pl. 16.

Material examined : Mayabunder (North Andaman), 15.8.1991, 1 ex., 335 mm, Coll : K. Chandra & party, Reg. No. 1689; 9.1.1992, 2 exs., 230 mm, Coll : D. V. Rao & party, Reg. No. 1830; Rutland Is. (South Andaman) 27.1. 1994, 1 ex., 234, Coll : D. V Rao & party, Reg. No. 2584.

Diagnostic features : D. 13-14; A. 11-12; P. 12; V. 6. Depth 6.2-7.1, head 3.2-4.5 in standard length; pectoral fin reaching forward to nasal fossa; preorbital ridge absent; upper jaw naked; predorsal scales 38-40; gill rakers 26-34 on lower arm of first arch; caudal fin forked, the lower lobe much longer than upper. Body greenish-blue above, silvery on sides and below with 4-8 prominent blotches on sides above lateral line; lower jaw dark, tip reddish; a silvery stripe with blue upper margin on sides of body.

Habitat : Found in the areas of rich submerged vegetation in coastal waters.

Distribution : Indo-West Pacific, from east coast of Africa, Gulf of Oman, coasts of India, Andaman Is. to China Sea and Ryukyu Islands.

Genus *Hyporhamphus* Gill, 1859*Hyporhamphus dussumieri* (Valenciennes, 1846)

1846. *Hemiramphus dussumieri* Valenciennes, *Hist. Nat. Poiss.*, 19 : 33, pl. 520.

1984. *Hyporhamphus dussumieri* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 314, fig. 127.

Material examined : Nancowry Is. (Nicobar Group), 10.2.1993, 3 exs., 160-275 mm, Coll : D. V. Rao & party, Reg. No. 2312.

Diagnostic features : D. 15; A. 15; P. 11; V. 6. Head 2.72-2.75 in standard length; upper jaw short, triangular and scaly, its width greater than length; lower jaw equal to head length; gill rakers 36-42 on first arch; origin of ventral fin nearer to base of caudal fin. Body greenish above, silvery below; scales of back and upper sides with dark-brown spots; bluish-silvery lateral band bordered black above; dorsal and caudal fins dusky.

Habitat : Found in inshore coastal waters and creeks.

Distribution : Indo-West Pacific, from Red Sea, Tanzania, Seychelles, Gulf of Oman, Lakshadweep, coasts of India, Andaman & Nicobar Is. to Japan and Society Islands.

Genus *Zenarchopterus* Gill, 1863*Key to species*

- 1a Male with 4th or 5th dorsal fin ray elongate or thickened; 6th anal fin ray wide and elongate *Z. gilli*
- 1b Dorsal fin rays not modified *Z. buffonis*

Zenarchopterus buffonis (Valenciennes, 1846)

1846. *Hemiramphus buffonis* Valenciennes, *Hist. Nat. Poiss.*, 19 : 48.

1991. *Zenarchopterus buffonis* : Talwar & Jhingran, *Inland fishes of India and Adjacent Countries*, 2 : 736.

Material examined : Hut Bay (Little Andaman), 20.9.1990, 1 ex., 175 mm, Coll : K. V. Raman & party, Reg. No. 1642.

Diagnostic features : D. 12; A. 12; P. 10; V. 6. Body elongate and slender; upper jaw wider than long, its length 7.1 in free lower jaw; 4th to 7th dorsal fin rays elongated; 6th anal fin ray expanded and elongated; predorsal scales 29. Body yellowish, sides of head and lateral stripe silvery; a dark brown stripe along mid line of snout, beak black; dorsal fin and margin of anterior anal fin rays black; caudal fin dusky.

Habitat : Found in inshore coastal waters and creeks.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is, Sumatra to Philippines and Australia.

***Zenarchopterus gilli* Smith, 1945**

1877. *Hemiramphus dispar* (nec Valenciennes) Day, *Fishes of India*, p. 517, pl. 119, fig. 5.

1991. *Zenarchopterus gilli* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 738.

Material examined : Car Nicobar Is. 5.9.1988, 2 exs., 140 mm, Coll : H. S. Mehta & party, Reg. No. 2038.

Diagnostic features : D. 12; A. 12; P. 10; V. 6. Upper jaw as long as wide at its base, its length 7.2 in free lower jaw; 4th to 6th dorsal fin rays elongate and thickened; caudal fin bluntly rounded. Body yellowish, back brownish; a silvery lateral band bordered above by a black line; mandible blackish with a white tip; caudal fin dusky.

Habitat : Found in coastal waters and creeks.

Distribution : Indo-West Pacific, from coasts of India, Andaman & Nicobar Is., East Indies, Caroline, Fiji, Guam and Australia.

Family BELONIDAE

Body elongate and sub-cylindrical, slightly compressed laterally; upper and lower jaws extended into a long beak; teeth moderate, needle-like; dorsal and anal fins posterior in position; no spines in fins; ventral fins abdominal in position; caudal fin forked or emarginate; nasal organ a pit with protruding tentacle; lateral line beginning on throat running along ventral margin of body; small cycloid scales on body.

Key to Genera

- 1a Caudal peduncle without lateral keels; caudal fin rounded or emarginate; dorsal rays below 16 ***Strongylura***
- 1b Caudal peduncle with small black lateral keels; caudal fin deeply forked; dorsal rays more than 20 ***Tylosurus***

Genus *Strongylura* Van Hasselt, 1823

***Strongylura strongylura* (Van Hasselt, 1823)**

1823. *Belone strongylura* Van Hasselt, *Alg. Konst. en Letterbode*, 1 : 130.

1980. *Strongylura strongylura* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 131, fig. 109.

Material examined : Mayabunder (North Andaman), 15.8.1991, 2 exs., 365 & 382 mm, Coll : K. Chandra & party, Reg. No. 1674.

Diagnostic features : D. 14; A. 16; P. 11; V. 6. Depth 15.8, head 2.56 in standard length; origin of dorsal fin opposite to 5th anal ray; caudal fin slightly rounded. Body light greenish above, whitish ventrally; a silvery stripe laterally on the body; all fins yellowish with greenish tinge; bluish black blotch on base of caudal.

Habitat : Found in shoals in open waters.

Distribution : Indo-West Pacific, from Pakistan, Lakshadweep, coasts of India, Andaman Is. Sri Lanka, Indonesia to China Sea and Australia.

Genus *Tylosurus* Cocco, 1833

Key to species

- 1a Canines of upper jaw curved forwards; narrow bluish-green band from opercle to base of caudal *T. gigantea*
- 1b Canines of upper jaw vertical; no band as in 1a *T. crocodilus*

Tylosurus crocodilus crocodilus (Peron & Le Sueur, 1821)

(Fig. 126)

1821. *Belone crocodilus* Peron & Sueur, *J. Acad. nat. Soc. Philad.*, 2(2) : 129.

1986. *Tylosurus crocodilus crocodilus* : Collette, in Smith & Heemstra, *Smith's Sea Fishes*, p. 387.

Material examined : Diglipur (North Andaman), 26.2.1990, 1 ex., 285 mm, Coll : G. C. Rao & party, Reg No. 1474; Car Nicobar Is., 24.12.1979, 1 ex., 262 mm, Coll : M. K. Dev Roy, Reg. No. 1326.

Diagnostic features : D. 22; A. 21; P. 14; V. 6. Depth 12.5; head 2.3 in standard length; lateral line forms a keel on caudal peduncle; caudal fin forked. Body dark-green, sides silvery.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-Pacific and Atlantic waters.

Tylosurus gigantea (Temminck & Schlegel, 1846)

1846. *Belone gigantea* Temminck & Schlegel, *Fauna Japonica Pisces*, p. 245.

1980. *Strongylura gigantea* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 133, fig. 111.

Material examined : Nancowry Is. (Nicobar Group), 10.2.1993, 2 exs., 319 & 324 mm, Coll : D. V. Rao & party, Reg. No. 2310.

Diagnostic features : D. 24; A. 20; P.13; V. 6. Depth 16.8, head 3.0 in standard length; interorbital groove broad and shallow; middle dorsal rays shorter than hinder rays; dorsal origin slightly behind the level of anal fin origin; caudal fin forked, lower lobe longer; lateral line forming a slightly elevated dark ridge on caudal peduncle. Body brownish above, silvery below with a narrow bluish-green band from opercle to base of caudal; fins yellowish; hinder half of dorsal and median caudal rays margin black.

Habitat : Found in open waters.

Distribution : Indo-Pacific, from Seychelles, Lakshadweep, coasts of India, Andaman & Nicobar Is., Indonesia to Japan, Australia, Samoa to Hawaiian Islands.

Family APLOCHEILIDAE

Body fusiform and compressed, upper jaw protrusible; villiform teeth on jaws and vomer; single dorsal fin, inserted on posterior third of body; no spines in the fin; ventral fin bases set close together, fin rays 6; large cycloid scales on body; lateral line on head, not on body.

Genus *Aplocheilus* Mc Clelland, 1839

Aplocheilus panchax (Ham.-Buch., 1822)

1822. *Esox panchax* Hamilton & Buchanan, *Fishes of Ganges*, p. 211, 380, pl. 3, fig. 69.

1991. *Aplocheilus panchax* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 752, fig. 241.

Material examined : Diglipur (North Andaman), 25.8.1989, 2 exs., 46 mm, Coll : P. T. Rajan, Reg. No. 1423; Shoal Bay (South Andaman), 27.6.1989, 2 exs., 58 mm, Coll : H. S. Mehta & party, Reg. No. 1400.

Diagnostic features : D. 8; A. 15; P. 14; V. 6. Ls. 33. Body elongate and compressed; eyes large, 3.3-3.4 in head; mouth terminal; anal fin square shaped; ventral fins small; caudal fin rounded. Upper part of body greenish, dull white ventrally; fins light yellow; a black blotch at base of dorsal fin; margin of anal fin reddish.

Habitat : Found in streams and ponds.

Distribution : Pakistan, India, Andaman Is., Bangladesh, Burma and Malayan Archipelago.

Order ATHERINIFORMES

Two dorsal fins, the first with flexible spines; brachistegal rays 5-7; parietals present.

Family ATHERINIDAE

Body elongate and somewhat compressed; mouth small to moderate, not exceeding past vertical through middle of pupil; teeth present or absent, small and feeble; two dorsal fins widely separated; ventral fins abdominal; pectorals inserted high on body; scales moderately large, cycloid; lateral line absent.

Genus *Atherinomorus* Fowler, 1903

Key to species

- 1a Mid-lateral scale count 34-37; dentary with tubercle at posterior end; mid-lateral band less than 1 scale width *A. duodecimalis*
- 1b Mid-lateral scale count 40-44; dentary flat; mid-lateral band 1-1½ scales width *A. lacunosus*

Atherinomorus duodecimalis (Valenciennes, 1835)

1835. *Atherina duodecimalis* Valenciennes, in Cuv. & Val. *Hist. nat. Poisson*, 10 : 458.

1986. *Atherinomorus duodecimalis* : Ivantsoff, in Smith and Heemstra *Smiths' Sea Fishes*, p. 382, fig. 111.2.

Material examined : Port Blair (South Andaman), 23.10.1989, 2 exs., 86-93 mm, Coll : H. S. Mehata & party, Reg. No. 1558. Nancowry Is. (Nicobar), 14.11.1989, 2 exs., 69-78 mm, Coll : H. S. Mehta & party, No. 1448.

Diagnostic features : D. V-VI + I, 9-10; A. I, 12; P. 14-16; V. I, 5; Depth 3.8-3.9, head 4.4-4.6 in standard length; eye 2.2-2.3 in head, longer than post-orbital part of head and interorbital space; dentary sloping backwards and upwards with a distinct small tubercle at posterior end, midlateral scale count 34-37. Body grey; head, base of fins and midlateral stripe silvery and less than one scale width; rows of dark spots present below the stripe; all fins dusky.

Habitat : Found in shallow coastal waters.

Distribution : Indo-West Pacific.

Atherinomorus lacunosus (Forster, 1801)

(Fig. 127)

1801. *Atherina lacunosa* Forster, in Bloch and Schneider *Syst. Ichthy.*, p. 112.

1986. *Atherinomorus lacunosus* : Ivantsoff, in Smith and Heemstra, *Smiths Sea Fishes*, p. 382, fig. 111.3.

Material examined : Diglipur (North Andaman), 19.5.1989, 2 exs., 98 mm, Coll : H. S. Mehata and party, Reg. No. 2703; Grub Is. (South Andaman), 6.12.1990, 13 exs., 77-92 mm, Coll : K. V. Raman & party, Reg. No. 2034; Mayabunder (North Andaman), 15.8.1991, 9 exs., 65-85 mm, Coll : K. Chandra & party, Reg. No. 2035.

Diagnostic features : D. V-VI + I, 8-9; A. I, 15-16; P. 14-16; V. I, 5; Depth 4.6-4.7, head 3.4-3.5 in standard length; eye 2.5-3.0 in head; dentary small and gently sloping upwards; posterior edge of opercle with distinct notch above angle; mid-lateral scale count 40-44. Body blue-green or grey; sides and cheeks silvery and iridescent; midlateral stripe silvery or black, more than one scale row; upper half of body heavily speckled with chromatophores; fins dusky.

Habitat : Found in shallow inshore waters.

Distribution : Wide spread in Indo-West Pacific.

Order BERCIFORMES

Body oblong, dorsal and anal fin spines well developed; lateral line complete and distinct; caudal fin with true procurent spines and 18-19 principal caudal rays; orbitosphenoid present; scales ctenoid.

Family HOLOCENTRIDAE

Body oblong to ovate; slightly compressed; eyes very large; teeth in jaws, vomer and palatines; maxilla extending to front edge of eye; bones on head ridged or grooved; margin of sub-orbital and operculum with spinules.

Key to Genera

- 1a Anal fin rays more than 10; angle of preopercle without spine ***Myripristis***
- 1b Anal fin rays 8-10; angle of preopercle with strong and stout spine 2
- 2a Last dorsal spine located at middle of between penultimate spine and 1st dorsal ray; jaws equal ***Sargocentron***
- 2b Last dorsal spine much closer to 1st ray of dorsal than to penultimate spine; lower jaw projecting ***Neonippon***

Genus *Myripristis* Cuvier, 1829

Key to species

- 1a One scale in inner side of pectoral fin base; margin and elevated parts of dorsal, anal and caudal fin lobes broadly black; spinous dorsal black ***M. adusta***
- 1b Numerous small scales on inner side of pectoral fin base; lobes of fins not black; margin of spinous dorsal red ***M. murdjan***

****Myripristis adusta*** (Bleeker, 1853)

1853. *Myripristis adustus* Bleeker, *Nat. Tijds. Ned. Indie*, 4 : 108.

1986. *Myripristis adusta* : Randall & Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 423, pl. 21.

Material examined : Hut Bay (Little Andaman). 22.9.1990, 1 ex., 162 mm, Coll : K. V. Raman & party, Reg. No. 1928; Rutland Is. (South Andaman), 21.2.1991, 1 ex., 155 mm, Coll : K. V. Raman & party, Reg. No. 2166; Katchal Is. (Nicobar Group), 14.2.1993, 1 ex., 225 mm, Coll : D. V. Rao & party, Reg. No. 2248.

Diagnostic features : D. XI, 15; A. IV, 14; P. 15; V. I, 7; Ll. 29. Depth 2.6, head 2.7 in standard length, eye 2.7 in head; two pairs of symphyseal tooth patches at front of lower jaw. Body pale pink, edges of scales dorsally on body black; region of opercular spines and pectoral axil black; elevated parts of dorsal, anal and caudal lobes broadly black.

Habitat : Found in shallow reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is., to Australia.

***Myripristis murdjan* (Forsskal, 1775)**

(Fig. 128)

1775 *Sciaena murdjan* Forsskal, *Descript Animal*, p. 48.1986. *Myripristis murdjan* : Randall & Heemstra, in /Smith & Heemstra, *Smith's Sea Fishes*, p. 424, pl. 22.

Material examined : Diglipur (North Andaman), 19.2.1990, 6 exs., 120-140 mm, Coll : G. C. Rao & party, Reg. No. 1709; Rangat Bay (Middle Andaman), 19.8.1991, 1 ex., 170 mm, Coll : K. Chandra & party, Reg. No. 1710; Katchal Is. (Nicobar Group), 14.2.1993, 1 ex., 148 mm, Coll : D. V. Rao & party, Reg. No. 2342.

Diagnostic features : D. XI, 14; A. IV, 11-12; P. 14-15; V. I, 7; Ll. 29-31. Depth 2.3-2.42, head 2.6-2.75 in standard length; eye 2.4-2.48 in head; single pair of tooth patch at symphysis of lower jaw; lower jaw slightly projecting. Body silvery-red, edges of scales darker; opercular membrane, axil of pectoral fin black; lobes of dorsal, anal and margin of caudal lobes red.

Habitat : Found in shallow coral reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan, southwards Australia to Hawaiian Islands.

Genus *Neoniphon* Castelnau, 1875****Neoniphon sammara* (Forsskal, 1775)**

(Fig. 129)

1775. *Sciaena sammara* Forsskal *Descript Animal*, p. 48.1980. *Holocentrum sammara* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 172, fig. 148.1986. *Neoniphon sammara* : Randall & Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, P. 416, pl. 19.

Material examined : Hut Bay (Little Andaman), 15.9.1990, 1 ex., 90 mm, Coll : K. V. Raman & party, Reg. No. 1884; Mayabunder (North Andaman), 9.1.1992, 1 ex. 205 mm, Coll : D.V. Rao, Reg. No. 1883.

Diagnostic features : D. XI, 12; A. IV, 8; P. 14; V. I, 7 : Ll. 41-42, Ltr. $2\frac{1}{2} + 1 + 7$. Depth 3.3, head 2.7 in standard length; eye 3.0 in head, equal to snout; lower jaw strongly projecting. Body pinkish-silvery, silvery below with a dark reddish-black spot on each scale and a light reddish stripe along lateral line scales; large reddish-black spot on anterior part of spinous dorsal fin membrane; anterior soft rays of dorsal, anal and margin of caudal fin lobes reddish.

Habitat : Found around coral reefs in shallow areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa, coasts of India, Andaman Is. to Japan and southwards Australia to Hawaiian Islands.

Genus *Sargocentron* Fowler, 1904

Key to species

- 1a Scales above lateral line to base of middle dorsal spines $3\frac{1}{2}$; lower jaw slightly projecting; spinous dorsal fin uniformly red; dark-red spot on pre-opercle behind eye *S. spiniferum*
- 1b Scales above lateral line to base of middle dorsal spines $2\frac{1}{2}$; lower jaw not projecting; colour not as in 1a 2
- 2a Lateral line scales 33-38 3
- 2b Lateral line scales above 38 4
- 3a Oblique row of cheek scales 5; dark pigment of ventrals confined to 2nd to 6th ray and distal margin of fin.....*S. rubrum*
- 3b Oblique row of cheek scales 4; 1st ray of ventral only pigmented..... *S. praslin*
- 4a Lateral line scales 42-43; body and dorsal fin red without stripes.....*S. caudimaculatum*
- 4b Lateral line scales 45-47; body with red and white stripes along scale rows; spinous dorsal red with white spots in the middle *S. ittodai*

Sargocentron caudimaculatum (Ruppell, 1838)

1838. *Holocentrum caudimaculatum* Ruppell, *Fische des rothen Meeres.*, p. 103.

1986. *Sargocentron caudimaculatum* : Randall & Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 418, pl. 19.

Material examined : Shoal Bay (South Andaman), 19.10.1992, 1 ex., 228 mm, Coll : P. T. Rajan, Reg. No. 2091.

Diagnostic features : D. XI, 15; A. IV; 9; P. 14; V. I, 7; Ll. 42. Depth 2.9, head 2.95 in standard length; eye 3.5 in head; dorsal profile of head nearly straight; edge of nasal fossa with 2 spinules; preopercular spine equal to eye diameter. Head and dorso-lateral part of body red, edges of scales silvery; ventro-lateral side of body silvery with light red shade; outer part of the dorsal membrane dark red.

Habitat : Found around reefs in shallow areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is. to Japan, and Australia to Hawaiian Islands.

* *Sargocentron ittodai* (Jordan & Fowler, 1903)

(Fig. 130)

1903. *Holocentrus ittodai* Jordan & Fowler, *Proc. U. S. Nat. Mus.*, 26 : 16, fig. 4.

1986. *Sargocentron ittodai* : Randall & Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 419, pl. 19.

Material examined : North Reef Is. (North Andaman), 25.3.1993, 1 ex., 104 mm, Coll : G. C. Rao & party, Reg. No. 2210.

Diagnostic features : D. XI, 13; A. IV, 8; P. 15; V. I, 7; Ll. 47. Depth and head 2.61 in standard length; eye 2.38 in head; no spines between nasal fossa and premaxillary groove; inter-orbital width slightly shorter than snout length. Body with red and silvery-white stripes along scale rows; spinous dorsal fin bright red with white spots; a series of white spots on interspinous membrane in lower part of fin; all other fins white.

Habitat : Found around reef slopes in shallow areas.

Distribution : Indo-West Pacific, from east coast of Africa, Andaman Is. to Japan, southwards to Australia and Marquesas.

***Sargocentron praslin* (Lacepede, 1802)**

1802. *Perca praslin* Lacepede, *Hist. Nat. Pois.*, 4 : 397, 418.

1986. *Sargocentron praslin* : Randall & Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 420, pl. 21.

Material examined : Rutland Is. (South Andaman), 16.10.1993, 1 ex., 70 mm, Coll : D. V. Rao & party, Reg. No. 2566; Outram Is. (Ritchies Archipelago), 1.3.1994, 1 ex., 114 mm, Coll : D. V. Rao & party, Reg. No. 2565; Great Nicobar Is., 12.2.1994, 1 ex., 124 mm, Coll : D. V. Rao & party, Reg. No. 2564.

Diagnostic features : D. XI, 13; A. IV, 9; P. 13; V.I. 7; Ll. 34-36. Depth 2.6-2.8, head 2.4-2.64 in standard length; eye 2.55-3.0 in head; margin of nasal fossa without spinules; preorbital with laterally projecting spine, followed by small retrose spinules; oblique row of scales on cheek 4. Body silvery-white with longitudinal brownish-red stripes; tips of spinous dorsal white, below a dark red sub-marginal band, followed by broad whitish zone and dark-red at base of fin; dark brown blotch at base of soft dorsal.

Habitat : Found in shallow reef areas and rocky bottoms.

Distribution : Indo-West Pacific, from east coast of Africa to Andaman Islands.

***Sargocentron rubrum* (Forsskal, 1775)**

1775. *Sciaena rubra* Forsskal, *Descript Animal*, P. 48.

1986. *Sargocentron rubrum* : Randall & Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 420, pl. 20.

Material examined : Shoal Bay (South Andaman), 19.10.1992, 1 ex., 202 mm, Coll : P. T. Rajan, Reg. No. 2090; Outram Is. (Ritchies Archipelago), 1.9.1994, 1 ex., 198 mm, Coll : D. V. Rao & party, Reg. No. 2090; Muvadera (Little Andaman), 16.5.1995, 1 ex., 209 mm, Coll : D. V. Rao & party, Reg. No. 2906.

Diagnostic features : D. XI, 13; A. IV, 8; P. 14; V I, 7; Ll. 36. Depth 2.9, head 2.8 in standard length; eye 2.9 in head; large spine below front edge of orbit; nasal fossa without spinules; pre-opercular spine more than 2/3 of eye diameter. Body with alternating brownish-red and silvery

white stripes; spinous dorsal dark red with white tipped spines and a whitish blotch in the middle of each membrane except the first; 2nd to 6th ray of ventral with dark pigment; upper and lower margins of caudal dark.

Habitat : Found near reefs and rocky areas in shallow waters.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Andaman Is., Sri Lanka to Japan and Australia.

***Sargocentron spiniferum* (Forsskal, 1775)**

1775. *Sciaena spinifera* Forsskal, *Descript. Animal.*, p. 49.

1986. *Sargocentron spiniferum* : Randall & Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 421, pl. 20.

Material examined : Rutland (South Andaman), 21.1.1994, 1 ex., 230 mm, Coll : D. V. Rao & party, Reg. No. 2505.

Diagnostic features : D. XI, 15; A. IV, 10; P.15; V. I, 7; Ll. 43. Depth 2.45, head 2.85 in standard length. Cheek with 8 oblique rows of scales; preopercular spine longer than orbit diameter; nasal bone and fossa without spinules posteriorly; anterior end of nasal bone with two short spines. Body red, edges of scales silvery white; spinous dorsal crimson; all other fins light orange; oblong crimson-red spot on preopercle and blotch on pectoral axil.

Habitat : Found in caves around coral reefs.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is. to Japan and to French Polynesia.

Order PEGASIFORMES

Body broad and depressed, oddly shaped, encased in bony plates; mouth small and toothless; long rostrum formed by fused nasals; gill filaments lobe-like and tufted; preopercle greatly enlarged.

Family PEGASIDAE

Body armoured with bony rings; tail small and flexible; ventral fins abdominal in position with one small spine and 1-2 rays; pectoral fins very large, fan-like, and horizontal; nasal bone forming rostrum.

Genus *Pegasus* Linnaeus, 1758

***Pegasus volitans* Linnaeus, 1758**

(Fig. 131)

1758. *Pegasus volitans* Linnaeus, *Syst. Nat.*, p. 338.

1993. *Pegasus volitans* : Rajan *et al.*, *J Andaman Sci. Assoc.*, 9(1 & 2) : 104.

Material examined : Bambooflat (South Andaman), 27.3.1993, 2 ex., 66 & 91 mm, Coll : P. T. Rajan, Reg. No. 2252.

Diagnostic features : D. 5; A. 5; P. 11; V. I, 2; depth 11.9, head 3.8 in standard length; eye 5.5 in head, 3.5 in snout; body enclosed by bony rings, fused on head and trunk; body rings 3 and tail rings 12; rear part of tail rings with a sharp spine at each end of plate; rostrum with short retrose spines; mouth toothless; operculum and pre-operculum fused into a bony plate. Body brownish with dark cross bands and spots; dorsal and pectoral fins with large dark spots; eyes blue.

Habitat : Found on sandy-coral rubble areas.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is., East Indies to Japan.

Order SYNGNATHIFORMES

Mouth small, situated at end of tube-shaped snout; upper jaw not protractile; ventral fins, if present, abdominal in position; lachrymal bones present, but other orbital bones absent; ribs absent.

Family FISTULARIIDAE

Body elongate, depressed; snout prolonged and tubular; no scales; no spines in fins; caudal fin forked, middle two rays produced into elongate filaments; lateral line well developed; anal close behind ventrals.

Genus *Fistularia* Linnaeus, 1758

Key to species

- 1a Elongate bony plates along dorsal-mid line in front of and behind dorsal; posterior lateral line ossifications ending in a retrose spine *F. petimba*
- 1b No bony plates along dorsal mid-line of body; no spines on lateral line ossifications *F. commersonii*

Fistularia commersonii Ruppell, 1838

1838. *Fistularia commersonii* Ruppell, *Neue. Weir. Von. Abyss. Fish. Res. Rothen. Meeres.*, p. 142.

1994. *Fistularia commersonii* : Rao *et al*, *J. Andaman Sci. Assoc.*, 10 (1 & 2) : 29.

Material examined : Kamorta Is. (Nicobar Group), 14.2.1993, 2 exs., 257 & 274 mm, Coll : D. V. Rao & party, Reg. No. 2873.

Diagnostic features : D. 15; A. 14; P. 14; V. 6. Body elongate; snout prolonged; no bony plates along mid line of body; no spines on lateral line ossifications; post temporal ridge smooth. Body brownish above with two bluish-green lines; median fins light pink.

Habitat : Found in coastal waters.

Distribution : Indo-West Pacific, from east coast of Africa, coasts of India, Nicobar Is. to South China Sea.

***Fistularia petimba* Lacepede, 1803**

1803. *Fistularia petimba* Lacepede, *Hist. Nat. Poiss.*, 5 : 89.

1986. *Fistularia petimba* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 444, pl. 23.

Material examined : Harmandar Bay (Little Andaman), 14.9.1990, 1 ex., 62 mm, Coll : K. V. Raman & party, Reg. No. 1861.

Diagnostic features : D. 16; A. 14; P. 16; V. 6. Elongate bony plates along dorsal mid-line of body; post temporal ridge with large antrose cirrae; anus close behind ventral. Body orange brown dorsally and silvery ventrally.

Habitat : Found in coastal waters.

Distribution : Wide spread in Atlantic and Indo-West Pacific.

Family CENTRISCIDAE

Body extremely compressed and elongate, razor-like; ventral edge of body very sharp; body encased in thin transparent bony plates, rear end of body twisted ventrally so that the dorsal fin is in caudal fin position and the caudal fin displaced ventrally; snout elongate and tubular; mouth small and toothless.

Key to Genera

- 1a First dorsal spine with movable segment at its end ***Aeoliscus***
- 1b First dorsal spine without movable segment at its end ***Centriscus***

Genus *Aeoliscus* Jordan & Starks, 1902

***Aeoliscus strigatus* (Gunther, 1861)**

(Fig. 132)

1861. *Amphisile strigatus* Gunther, *Cat. Brt. Mus.*, 3 : 528.

1990. *Aeoliscus strigatus* : Mehta *et al*, *J Andaman Sci. Assoc.*, 6 (2) : 194, fig. 2.

Material examined : Havelock Is. (Ritchie's Archipelago), 19.3.1988, 4 exs., 103 mm, Coll : H. S. Mehta & party, Reg. No. 1403; Chidiyatapu (South Andaman), 19.8.1993, 3 exs., 32-41 mm, Coll : D. V. Rao, Reg. No. 2614; North Reef Is. (North Andaman), 26.3.1993, 4 exs., 102-112 mm, Coll : G. C. Rao & party, Reg. No. 2796; Rangat Bay (Middle Andaman), 8 exs., 86-115 mm, Coll : K. Chandra & party, Reg. No. 2798; Hut Bay (Little Andaman), 15.9.1990, 3 exs., 72-84 mm, Coll : K. V. Raman & party, Reg. No. 2799; Narcondam Is. (North Andaman), 15.3.1994, 6 exs., 108-126 mm, Coll : D. V. Rao, Reg. No. 2792; Nancowry Is. (Nicobar Group), 14.2.1994; 5 exs., 120-140 mm, Coll : D. V. Rao & party, Reg. No. 2300 & 2838.

Diagnostic features : D. III, 9-10; A. 11-13; P. 12; V. 4. Depth 8.6-9.1, head 2.4-2.6 in standard length, eye 11.5-12.2 in head; body extremely compressed with sharp ventral edge; mouth toothless; first dorsal spine with movable segment at its end. Body yellowish-brown with a black stripe from snout to base of caudal fin.

Habitat : Found in small schools around coral reef areas.

Distribution : Indo-West Pacific, from Seychelles, Andaman & Nicobar Is., Indonesia to Japan and Hawaiian Islands.

Genus *Centriscus* Linnaeus, 1753

Centriscus scutatus Linnaeus, 1783

1783. *Centriscus scutatus* Linnaeus, *Hist. Nat.* ed. 10, p. 336.

1955. *Centriscus scutatus* : Munro, *Fishes of Ceylon*, p. 81, pl. 14.

Material examined : Diglipur (North Andaman), 19.5.1989, 3 exs., 72-82 mm, Coll : H. S. Mehta & party, Reg. No. 2699; Hut Bay (Little Andaman), 25.10.1991, 3 exs., 87-92 mm, Coll : P. T. Rajan, Reg. No. 2048; Port Blair (South Andaman), 31.7.1993, 7 exs., 82-94 mm, Coll : P. T. Rajan, Reg. No. 2801; Tarmugli Is. (South Andaman), 2.9.1993, 10 exs., 61-62 mm, Coll : D. V. Rao & party, Reg. No. 2802; Outram Is. (Ritchie's Archipelago), 3.3.1994, 4 exs., 72-81 mm, Coll : D. V. Rao & party, Reg. No. 2800; Kamorta Is. (Nicobar Group), 9.2.1993, 3 exs., 110 mm, Coll : D. V. Rao & party, Reg. No. 2839.

Diagnostic features : D. III, 10; A. 11; P. 12; V. 4. Depth 9.2, head 3.0 in standard length; interorbital space with a groove continued to the crown of head; dorsal spine without movable segment at its end; sutures of lateral plates serrated. Body silvery with faint narrow lateral streak.

Habitat : Found in small schools around coral reefs and weeds.

Distribution : Indo-Pacific, from Madagascar, Muscat, Sri Lanka, Gulf of Mannar, Andaman & Nicobar Is., Philippines to Japan.

Family SOLENOSTOMIDAE

Body very short and compressed, encased in bony plates; snout small, tubular with terminal mouth; two separate dorsal fins. They are masters of camouflage, body shape and colouration blends in effectively with Sea weeds.

Genus *Solenostomus* Bleeker, 1851

Key to species

- 1a Caudal peduncle as long as deep; membrane of caudal beginning very nearer to second dorsal and anal fins *S. cyanopterus*

- 1b Caudal peduncle longer than high; membrane of caudal beginning at a distance from second dorsal and anal fins.....*S. paradoxus*

***Solenostomus cyanopterus* Bleeker, 1854**

1854. *Solenostomus cyanopterus* Bleeker, *Nat. Tijds. Ned. Indie.*, p. 507.

1993. *Solenostomus cyanopterus* : Rajan *et al*, *J Andaman Sci. Assoc.*, 9(1 & 2) : 105.

Material examined : Chidiyatapu (South Andaman), 19.8.1993, 1 ex., 54 mm, Coll : D. V. Rao & party, Reg. No. 2403.

Diagnostic features : D. V, 18; A. 18; P. 26; V. 7. Depth 4.8, head 2.1 in standard length, eye 6.0 in head. Body short and compressed encased in bony plates; body and inferior border of snout with scattered dermal appendages; a small barbel present at tip of lower jaw; caudal peduncle depth greater than its length; membrane of caudal beginning very close to 2nd dorsal and anal fins. Body reddish-green with scattered black and white spots between 1st and 3rd dorsal spines and upper part of fin with scattered black spots; caudal fin brown with black spots; other fins whitish.

Habitat : Found in weed beds near reef areas.

Distribution : Indo-Pacific, from Red Sea, Madagascar to Mauritius, Lakshadweep, coasts of India, Andaman Is., Indonesia to Japan, New Guinea and Australia.

***Solenostomus paradoxus* (Pallas, 1870)**

(Fig. 133)

1870. *Fistularia paradoxus* Pallas, *Specil. Zool.*, 8 : 32.

1993. *Solenostomus paradoxus* : Rajan *et al*, *J Andaman Sci. Assoc.*, 9 (1 & 2) : 105.

Material examined : Port Blair (South Andaman), 21.8.1993, 1 ex., 47 mm, Coll : D. V. Rao, Reg. No. 2408.

Diagnostic features : D. V. 22; A. 22; P. 24; V. 7. Depth 4.5, head 2.0 in standard length, eye 8.5 in head, 5.5 in snout. Caudal peduncle slender, about as long as deep; the membrane of caudal fin beginning at a distance from 2nd dorsal and anal fins; body with small dermal appendages. Body light brownish-green with small black spots; membrane between 1st and 3rd spines with black blotches and small scattered black spots on the remaining fin; caudal fin dusky.

Habitat : Found in weedy areas near dead coral patches.

Distribution : Indo-Pacific, from Zanzibar, Mauritius, Maldives, Gulf of Manner, Andaman Is. to Japan.

Family SYNGNATHIDAE

Body slender and elongate, encased in a series of bony rings; mouth small, terminal, usually on protruding tubiform snout; single dorsal fin; anal fin very small with 2-6 rays; peduncle prehensile in some; gill openings small, males carry the eggs in a pouch under trunk or tail.

Key to Genera

- 1a Superior trunk and tail ridges discontinuous 2
- 1b Superior trunk and tail ridges continuous 7
- 2a Inferior trunk and tail ridges continuous 3
- 2b Inferior trunk and tail ridges discontinuous 5
- 3a Lateral trunk ridge deflected to the inferior cristae of tail ***Hippichthys***
- 3b Lateral trunk ridge not deflected 4
- 4a Lateral trunk ridge and inferior tail ridge continuous ***Dorychthys***
- 4b Lateral trunk ridge and inferior tail ridge discontinuous ***Corythoichthys***
- 5a Caudal fin absent, tail prehensile ***Hippocampus***
- 5b Caudal fin not prehensile 6
- 6a Pectoral rays 10-15; male brood area under tail; edges of body rings not ending in a backward spine ***Halicampus***
- 6b Pectoral rays 19-23; male brood area under trunk; edges of body rings ending in a backward spine ***Doryramphus***
- 7a Caudal fin absent; tail prehensile; lateral trunk ridge end near superior tail ridge
..... ***Syngnathoides***
- 7b Caudal fin present; tail not prehensile; lateral trunk ridge continuous with inferior tail ridge 8
- 8a Tail shorter than trunk; most part of dorsal fin situated on trunk ***Choeroichthys***
- 8b Tail longer than trunk, 1.6-2.0 in trunk; most part of dorsal fin situated on tail
..... ***Phoxocampus***

Genus ***Corythoichthys*** Kaup, 1856***Corythoichthys haematopterus*** (Bleeker, 1851)

(Fig. 134)

1851. *Syngnathus haematopterus* Bleeker. *Nat. Tijd. Ned. Indie.*, 2 : 258.
1980. *Corythoichthys intestinalis* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, P. 165, fig. 142.
1984. *Corythoichthys haematopterus* : Araga, in Masuda *et al*, *Fishes of Japanese Archipelago*, p. 87, pl.76K, L.

Material examined : Port Blair (South Andaman), 30.7.1991, 2 exs., 130 & 135 mm, Coll : D. V. Rao, Reg. No. 1903; Havelock Is. (Ritchie's Archipelago), 21.11.1991, 3 exs., 113-133 mm, Coll: D. V. Rao, 2820; Outram Is. (Ritchie's Archipelago), 3.3.1994, 2 exs., 102 & 127 mm, Coll : D. V Rao & party, Reg. No. 2828.

Diagnostic features : D. 30; A. 4; P. 17; Body rings 17 + 36. Dorsal profile of head strongly convex in front of eye; snout without a lateral ridge; superior ridges of trunk and tail discontinuous; median ridge of trunk and superior ridge of tail interrupted; inferior ridge of trunk and tail continuous. Body whitish-yellow with diffuse brown bars on sides and wavy blackish stripes; throat with 2-3 black cross bars.

Habitat : Found in shallow coral reef areas.

Distribution : Indo-West Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is. to Japan and Australia to New Hebrides.

Genus *Choeroichthys* Kaup, 1856

Choeroichthys sculptus (Gunther. 1870)

1870. *Doryichthys sculptus* Gunther, *Cat. Fish. Brit. Mus.*, p. 185.

1986. *Choeroichthys sculptus* : Dawson, in Smith & Heemstra, *Smith's Sea Fishes*, p. 447, fig. 145.2.

Material examined : South Bay (Little Andaman), 16.3.1995, 1 ex., 60 mm, Coll : D. V. Rao, Reg. No. 2874.

Diagnostic features : D. 32; A. 4; P. 21; C. 10; Body rings 20 + 21. Dorsal profile of snout concave, almost equal to post orbital part of head; keels on snout smooth; superior trunk and tail ridges continuous, while inferior ridge of trunk ends on anal ray; lateral trunk ridge continuous with inferior tail ridge. Body yellowish with 3 rows of dark edged bluish-white spots on trunk rings; a dark stripe through eye and black spots on lower part of head; caudal fin brownish.

Habitat : Found on coral reefs.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, Andaman Is. to Ryukyu Is. and Australia to Society Islands.

Genus *Doryichthys* Kaup, 1856

Doryichthys martensi (Peters, 1869)

1869. *Syngnathus martensi* Peters, *Monatsh. Akad. Berlin.* p. 459.

1922. *Doryichthys martensi* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 4 : 54.

Material examined : Car Nicobar, 10.9.1988, 4 exs., 110-138 mm, Coll : H. S. Mehta & party, Reg. No. 2185.

Diagnostic features : D. 36; A. 4; P. 18-20; C. 9; Body rings 17 + 33 - 34. Inferior ridge of trunk and tail continuous; the median ridge of trunk and superior ridge of tail sub-continuous; the median keel of snout reaches to nostrils; tail longer than head and trunk. Body reddish-brown. a black spot on median ridge from 4th to penultimate ring of trunk.

Habitat : Found in creeks.

Distribution : Indo-Malayan region from Nicobar Is. to Borneo, Java and Sumatra.

Genus *Doryramphus* Kaup, 1853

Key to species

- 1a Body with distinct reddish-black cross bands *D. dactyliophorus*
- 1b Body with bluish mid-lateral stripe; no cross bands *D. excisus*

* *Doryramphus dactyliophorus* (Bleeker, 1853)

1853. *Syngnathus dactyliophorus* Bleeker, *Nat. Tijds. Ned. Indie.*, p.

1986. *Doryramphus dactyliophorus* : Dawson, in Smith & Heemstra, *Smith's Sea Fishes*, p. 448, pl. 23.

Material examined : Rutland (South Andaman), 25.9.1994, 3 exs., 129-133 mm, Coll : D. V. Rao & party, Reg. No. 2184.

Diagnostic features : D. 22-24; A. 4; P. 20-21; Body rings 18+22. Body elongate, heptagonal; superior trunk and tail ridges discontinuous; inferior trunk and tail discontinuous near anal ring, the edges of each ring ending in a large backward spine; snout long with 3 longitudinal low ridges dorsally. Colour yellowish with distinct reddish black cross bands on body and snout; caudal fin reddish with white margin.

Habitat : Found around rocky and coral reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa, Andaman & Nicobar Is. to Japan and Australia to New Zealand and Austral Islands.

Doryramphus excisus excisus Kaup, 1856

1856. *Doryramphus excisus* Kaup, *Cat. Lophobar Fish.*, p. 54, pl. 3.

1986. *Doryramphus excisus excisus* : Dawson, in Smith & Heemstra, *Smith's Sea Fishes*, p. 448, pl. 23.

Material examined : Rutland (South Andaman), 25.5.1994, 2 exs., 43 & 48 mm, Coll : D. V. Rao & party, Reg. No. 2576.

Diagnostic features : D. 23-25; A. 4; P. 20; Body rings 17+14-16. Snout long with serrated median ridge dorsally and granulated ridge on either side; superior trunk and tail ridges discontinuous; inferior

trunk ridge ending on anal ring; lateral trunk ridge continuous with inferior tail ridge; ridges on each body ring with spine posteriorly. Body bright orange with bluish mid-lateral stripe from tip of snout to tail; caudal fin bluish-black.

Habitat : Found in reef crevices.

Distribution : Indo-Pacific, from east coast of Africa, Seychelles, Mauritius, Lakshadweep, Andaman Is., Indonesia to Ryukyu Is. and Samoa to Hawaii Islands.

Genus *Halicampus* Kaup, 1856

**Halicampus mataafae* (Jordan & Seale, 1906)

1906. *Corythoichthys mataafae* Jordan & Seale, *Bull. Bur. Fish.*, 25 : 213, fig. 19.

1986. *Halicampus mataafae* : Dawson, in Smith & Heemstra, *Smith's Sea Fishes*, p. 451.

Material examined : Narcondam Is. (North Andaman), 14.3.1994, 3 exs., 74-76 mm, Coll : D. V. Rao, Reg. No. 2931.

Diagnostic features : D. 22; A. 3; P. 12; Body rings 15+34. Trunk heptagonal, tail tetragonal; snout very short with a median crest having 3-4 spine like elevations; dermal flaps present on eye, nape and behind eye. Body brownish with irregular diffuse pale bars on head, back and tail.

Habitat : Found around coral reefs.

Distribution : Indo-West Pacific, from Mozambique to Red Sea, Andaman Is. and east to Samoa Islands.

Genus *Hippichthys* Bleeker, 1879

Key to species

- 1a Scutella without a longitudinal keel; dorsal origin usually on 1st tail ring *H. heptagonus*
- 1b Scutella usually with a longitudinal keel; dorsal origin on or behind 2nd tail ring *H. spicifer*

Hippichthys heptagonus Bleeker, 1849

1849. *Hippichthys heptagonus* Bleeker, *Vehand. Batav. Genootsch. XXII Bijdr. Ichth. Fauna Madura*, p. 15.

1986. *Hippichthys heptagonus* : Dawson, in Smith & Heemstra, *Smith's Sea Fishes*, p. 452.

Material examined : Car Nicobar, 5.9.1988, 1 ex., 107 mm, Coll : H. S. Mehta & party, Reg. No. 2039.

Diagnostic features : D. 27; A. 3; P. 14; C. 10; Body rings 15 + 37. Body compressed, heptagonal; abdominal cristae sharp and prominent; dorsal origin on 1st tail ring; tail twice as long as trunk; inferior trunk and tail ridges continuous; the median trunk ridge deflected ventrally near anal

ring; operculum with a complete keel. Body brownish with white, black margined ocellus on each trunk ring along the inferior cristae; ventral surface of snout and head with black spots; caudal fin black.

Habitat : Found in coastal waters and creeks.

Distribution : Indo-West Pacific, from east coast of Africa, coasts of India, Nicobar Is., Sri Lanka, Indonesia to Solomon Is.

***Hippichthys spicifer* (Ruppell, 1838)**

1838. *Syngnathus spicifer* Ruppell, *Neu. Wirbil. Fishes des Rothen Meeres*, p. 143, pl. 33, fig. 4.

1986. *Hippichthys spicifer* : Dawson, in Smith & Heemstra, *Smith's Sea Fishes*, p. 452, pl. 23.

Material examined : Car Nicobar, 8.9.1988, 1 ex., 96 mm, Coll : H. S. Mehta & party, Reg. No. 2040.

Diagnostic features : D. 28; A. 3; P. 17; Body rings 15 + 14. Body slender, trunk heptagonal and tail tetragonal; snout longer, almost twice the post orbital part of head; operculum with complete longitudinal keel; median cristae of trunk deflected on last ring of trunk and 1st ring of tail to inferior cristae of tail, but not united with them; superior cristae of tail and median cristae of trunk discontinuous ; dorsal origin on or behind 2nd tail ring. Body brownish; trunk ventrally dusky with 13-15 white cross bars.

Habitat : Found in muddy coastal waters and creeks.

Distribution : Indo-West Pacific, from east coast of Africa, Madagascar, Seychelles, coasts of India, Andaman & Nicobar Is. to China and Caroline Islands.

Genus *Hippocampus* Rafinesque, 1810

***Hippocampus kuda* Bleeker, 1852**

(Fig. 135)

1852. *Hippocampus kuda* Bleeker, *Nat. Tijds. Ned. Indie.*, 3 : 82.

1986. *Hippocampus kuda* : Dawson, in Smith & Heemstra, *Smith's Sea Fishes*, p. 453, fig. 145.19.

Material examined : Chidiyatapu (South Andaman), 31.7.1992, 2 exs., 98 mm, Coll : D. V. Rao & party, Reg. No. 2546; Kamorta Is. (Nicobar Group), 14.2.1993, 1 ex., 175 mm, Coll : D. V. Rao & party, Reg. No. 2298.

Diagnostic features : D. 16; A. 4; P. 16; Body rings 11 + 36. Body rings without spines; snout length 2.4 in head; cornet low, divided distally; tubercles on body rings; dorsal fin located above last two body rings and first two tail rings. Body dark brown with scattered dark spots and cross bands on tail.

Habitat : Found among Sea weeds near reefs.

Distribution : Indo-Pacific, from Red Sea, Mozambique, Kenya, Madagascar to Lakshadweep, coasts of India, Andaman & Nicobar Is. to Japan and Australia to Hawaiian Islands.

Genus *Phoxocampus* Dawson, 1977

**Phoxocampus tetrophthalmus* (Bleeker, 1858)

1858. *Syngnathus tetrophthalmus* Bleeker, *Nat. Tijds. Ned. Indie.*, 14 : 467.
 1922. *Ichthyocampus kampeni* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 4 : 93, fig. 38.
 1984. *Phoxocampus tetrophthalmus* : Araga, in Masuda *et al*, *Fishes of Japanese Archipelago*, p. 88, pl. 34 G.

Material examined : Chidiyatapu (South Andaman), 2.8.1993, 3 exs., 48-50 mm, Coll : D. V. Rao, Reg. No. 2934; Rutland Is. (South Andaman), 25.1.1994, 1 ex., 67 mm, Coll : D. V. Rao; Reg. No. 2933; Narcondam Is. (North Andaman), 14.3.1994, 1 ex., 60 mm, Coll : D. V. Rao, Reg. No. 2932.

Diagnostic features : D. 20-21; A. 3; P. 12-13; Body rings 16 + 30. Body stout and short; superior and inferior ridges of trunk continuous with the corresponding ridges of tail; lateral trunk ridge rectilinear, ends on 17th tail ring, opercular ridge with complete keel; posterior tail rings with sharp edges, increasing in height posteriorly, ending in a sharp tooth. Body brown with 10-11 small white blotches dorso-laterally.

Habitat : Found in shallow rocky and reef areas.

Distribution : Indo-West Pacific, from Andaman Is., Ambon, and west coast of New Guinea.

Genus *Syngnathoides* Bleeker, 1851

Syngnathoides biaculeatus (Bloch, 1785)

1785. *Syngnathus biaculeatus* Bloch, *Nat. Ausland Fische.*, 1 : 10, pl. 12; fig. 1 & 2.
 1980. *Syngnathoides biaculeatus* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 166, fig. 143.

Material examined : Rutland (South Andaman), 2.8.1993, 2 exs., 215 mm, Coll : D. V. Rao & party, Reg. No. 2299.

Diagnostic features : D. 42; A. 4; P. 23; Body rings 17 + 46. Trunk compressed dorso-ventrally, broadest near middle of trunk; a pair of small branched barbels at chin; superior and inferior ridges of trunk and tail continuous; lateral trunk ridge angled dorsally, end near superior tail ridge; caudal fin absent; tail prehensile. Body greenish-brown, yellow below.

Habitat : Found among floating sea weeds in reef areas

Distribution : Indo-Pacific, from Red Sea, east coast of Africa, Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Samoa Island.

Order DACTYLOPTERIFORMES

Family DACTYLOPTERIDAE

Body square shaped, tapering behind; head large, blunt and bony; body covered with scute-like scales; pre-opercle spiny and long; pectoral fins enlarged; inner rays free; two free spines before two dorsal fins; ventral fin thoracic; no lateral line.

Genus *Dactyloptena* Jordan & Richardson, 1908*Dactyloptena orientalis* (Cuvier, 1829)

(Fig. 136)

1829. *Dactylopterus orientalis* Cuvier, in Cuv. & Val., *Hist. Nat., Poiss.*, 4 : 134, pl. 86.1993. *Dactylopterna orientalis* : Rajan, et al, *J Andaman Sci. Assoc.*, 9 (1 & 2) : 105.

Material examined : Rutland Is. (South Andaman), 17.10.1993, 1 ex., 160 mm, Coll : D. V. Rao & party, Reg. No. 2435.

Diagnostic features : D. I+I+V+I, 5; A. 6; P. 32; V. I, 4. Depth 1.4, head 3.65 in standard length; eye 3.4 in head, 1.6 in interorbital space. Body robust, body with strong spines and keels; a bony ridge across cheek to preopercle; maxillary reaching to below anterior half of eye; first dorsal ray just behind head, second spine above base of pectoral fin level; a strong short spine between first and second dorsal fins. Colour pale violet above, lighter below; first dorsal pale brown; second dorsal and caudal fins pale with dark brown blotches; anal fin hyaline.

Habitat : Found on coral rubble bottom.

Distribution : Indo-Pacific, from east coast of Africa, Lakshadweep, coasts of India, Sri Lanka, Andaman Is., Indonesia to Japan, Australia to Hawaiian Islands.

Order SCORPAENIFORMES

Body shape varies; head with ridges and spines; opercle and preopercle with spines; many species are scaled, some unscaled; dorsal fin single, deeply notched between spinous and soft portions or both separated; pectoral fins rounded; caudal fin rounded or square-cut; gill membranes free from isthmus; spines of fins sharp and venomous.

Family SCORPAENIDAE

Body slightly compressed to robust; head with spines and ridges; margin of preopercle with 3-5 spines; a row of spines below eye on bony ridge; single dorsal, notched strongly at end of spinous part; gill membranes free from isthmus.

Key to genera

- 1a Dorsal fin origin before or above eye; head and body naked ***Tetraroge***
- 1b Dorsal fin origin after eye; head and body partly or fully scaled or with rudimentary scales 2
- 2a Dorsal fin spines XIII-XIV 3
- 2b Dorsal fin spines XII 4

- 3a Teeth on vomer present; upper part of head without spines or ridges; rudimentary scales on body; first 3 anterior dorsal spines remote from rest of the fin and connected by membrane; last dorsal and anal rays connected to caudal *Vespicula*
- 3b Vomer endentate; upper part of head with spines and ridges; small scales on body; dorsal fin normal in position; last ray of dorsal and anal not connected to caudal *Scorpaenodes*
- 4a Dorsal spines longer than body depth; pectorals long and fan-like 5
- 4b Dorsal spines less than body depth; pectorals short and wedge shaped or rounded 6
- 5a All pectoral rays branched *Pterois*
- 5b Few upper pectoral rays branched *Dendrochirus*
- 6a Rear lachrymal spine strongly hooked forward; scales cycloid *Parascorpaena*
- 6b Rear lachrymal spine not strongly hooked; scales ctenoid 7
- 7a Palatine teeth present; upper pectoral rays divided and lower simple or all simple *Sebastapistes*
- 7b Palatine teeth absent; upper pectoral rays divided, lower simple *Scorpaenopsis*

Genus *Dendrochirus* Swainson, 1839

Key to species

- 1a Mid-dorsal spines longer than body depth; T-shaped mark on sides of caudal peduncle *D. zebra*
- 1b Mid-dorsal spines about equal to or slightly shorter than body depth; no T-shaped mark on caudal peduncle *D. brachypterus*

* *Dendrochirus brachypterus* (Cuvier, 1829)

1829. *Pterois brachypterus* Cuvier, *Hist. Nat. Poiss.*, 4 : 368.

1986. *Dendrochirus brachypterus* : Eschmeyer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 465, pl. 26.

Material examined : Mayabunder (North Andaman), 8.1.1992, 1 ex., 55 mm, Coll : D. V. Rao, Reg. No. 2808; Rutland Is. (South Andaman) 2 exs., 63 & 72 mm, Coll : D. V. Rao & party, Reg. No. 2809.

Diagnostic features : D. XIII, 9-10; A. III, 5; P. 18; V. I, 5. Depth 2.42-2.52, head 2.42-2.52 in standard length; mid-dorsal spine almost equal to body depth; filaments on snout, eye and on opercle margin; a flap at posterior nostril. Body reddish with broad black bars on head and body; prominent dark bands on paired fins; dorsal, anal and caudal fins with dark spots.

Habitat : Found on coral reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Andaman Is., Indonesia to Hawaiian Islands.

***Dendrochirus zebra* (Cuvier, 1829)**

1829. *Pterois zebra* Cuvier, in Cuv. & Val. *Hist. Nat. Poiss.*, 6 : 270.

1986. *Dendrochirus zebra* : Eschmeyer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 466, fig. 149.5.

Material examined : South Reef Is. (North Andaman), 23.3.1993, 1 ex., 84 mm, Coll : G. C. Rao & party, Reg. No. 2935; Tarmugli Is. (South Andaman), 1.9.1993, 1 ex., 108 mm, Coll : D. V. Rao & party, Reg. No. 2936; Narcondam Is. (North Andaman), 15.3.1994, 1 ex., 122 mm, Coll : D. V. Rao, Reg. No. 2937.

Diagnostic features : D. XIII, 10-11; A. III, 6; P. 17; V. I, 5. Depth 2.59-2.6, head 2.4-2.7 in standard length; orbital tentacle long; short spines between nostrils; mid-dorsal spine longer than body depth; upper pectoral rays simple, rays not filamentous. Body reddish-brown with alternate dark brown and narrow white bars; a T-shaped red band on caudal peduncle; all fins dark spotted; a dark black blotch on lower edge of opercle.

Habitat : Found around coral reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Samoa Islands.

Genus *Parascorpaena* Bleeker, 1876

***Parascorpaena picta* (Cuvier, 1829)**

1829. *Scorpaena picta* Cuvier, in Cuv. & Val. *Hist. Nat. Poiss.*, 4 : 321.

1980. *Parascorpaena picta* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 623, fig. 533.

Material examined : Rutland (South Andaman), 25.1.1994, 1 ex., 111 mm, Coll : D. V. Rao & party, Reg. No. 2819; Outram Is. (Ritchie's Archipelago), 3.3.1994, 2 exs, 105 mm, Coll : D. V. Rao & party, Reg. No. 2818.

Diagnostic features : D. XII, 9; A. III, 5; P. 16; V. I, 5. Depth 3.1-3.15, head 2.42-2.51 in standard length; head spines well developed; lachrymal bone with 2 spines over maxillary; palatine teeth present; long denticulated supra-orbital tentacle and small filaments on lateral line; upper rays of pectoral fin divided; scales on body cycloid. Body brownish, marbled with brown; indistinct oblique bands and markings on dorsal and anal fins; caudal fin with dark band at base and centre of fin; ventral fins with indistinct bars.

Habitat : Found on coral rubble.

Distribution : Indo-West Pacific, from Seychelles, Zanzibar, Lakshadweep, coasts of India, Andaman Is., Sri Lanka to China Sea and Fiji.

Genus *Pterois* Oken, 1817

Key to species

- 1a Scales cycloid; dorsal spines XIII; pectoral 12-14*P. volitans*
- 1b Scales ctenoid; dorsal spines XII; pectoral rays 16-17 2
- 2a Numerous dark bars on body; thin diagonal bars on caudal peduncle; tentacle above eye, banded with dark; median fins spotted*P. antennata*
- 2b Five broad dark bars on body, bordered by white; broad horizontal stripe on caudal peduncle; tentacle above eye not banded; median fins not spotted*P. radiata*

Pterois antennata (Bloch, 1787)

(Fig. 137)

1787. *Scorpaena antennata* Bloch, *Nat. Ausland. Fische.*, 3 : 21, pl. 185.

1986. *Pterois antennata* : Eschmeyer, in Smith & Heemstra, *Smith's Sea Fishes* , p. 466, pl. 25, fig. 149.7.

Material examined : Rayhill Is. (North Andaman), 19.3.1993, 1 ex., 124 mm, Coll : D. V. Rao & party, Reg. No. 2257.

Diagnostic features : D. XII, 11; A. III, 6; P. 16; V. I, 5. Tips of pectoral rays long and filamentous, supra-orbital tentacle with black lateral flaps. Body reddish-brown with a dark brown bars and narrow white bars on head and body, the dark band from eye to angle of preopercle more prominent; caudal peduncle with thin diagonal bars; pectoral fins with large dark blotches; dorsal, anal and caudal fins with black spots; supra-orbital tentacle with dark cross bands.

Habitat : Found on reefs.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is. to Japan and Australia to New Hebrides.

Pterois radiata Cuvier, 1829

1829. *Pterois radiata* Cuvier, in Cuv. & Val., *Hist. Nat. Poiss.*, 4 : 359.

1986. *Pterois radiata*: Eschmeyer, in Smith & Heemstra, *Smith's Sea Fishes* , p. 467, pl. 25, fig. 149.10.

Material examined : Rutland (South Andaman), 27.1.1994, 1 ex., 175 mm, Coll : D. V. Rao & party, Reg. No. 2585; Outram Is. (Ritchie's Archipelago), 1.3.1994, 1 ex., 120 mm, Coll : D. V. Rao & party, Reg. No. 2561.

Diagnostic features : D. XII, 11; A. III, 6; P. 16; V. I, 5. Supra-orbital tentacle smooth without appendages or bars. Body reddish-brown, with 5-6 broad dark bars on body, separated by thin white lines; horizontal dark areas on caudal peduncle.

Habitat : Found around coral reefs and coral rubble.

Distribution : Indo-Pacific, from Sodwana Bay to Lakshadweep and Andaman Is. and Marshal Is. to Hawaiian Is.

***Pterois volitans* (Linnaeus, 1758)**

(Fig. 138)

1758. *Gasterosteus volitans* Linnaeus, *Syst. Nat.*, ed. 10, p. 296.

1980. *Pterois volitans* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 635, fig. 543.

Material examined : South Reef Is. (North Andaman), 23.3.1993, 1 ex., 68 mm, Coll : G. C. Rao & party, Reg. No. 2939; Tarmugli Is. (South Andaman), 29.9.1993, 3 exs., 89-93 mm, Coll : D. V. Rao & party, Reg. No. 2938; Rutland Is. (South Andaman), 2 exs., 97 & 203 mm, Coll : D. V. Rao, Reg. No. 2429; Outram Is. (Ritchie's Archipelago), 3.3.1994, 1 ex., 58 mm, Coll : D. V. Rao & party, Reg. No. 2803.

Diagnostic features : D. XIII, 10-11; A. III, 7; P. 14; V. I, 5. Small dermal filaments on snout, preorbital and preopercular margin; supraorbital tentacle long, longer than orbit; outer half of pectoral rays free with feather-like membranes. Body reddish with numerous dark brown cross bars and narrow pale interspaces; head with similar bands; dorsal, anal and caudal fins with black spots; ventral fins with small pearly spots and black margin.

Habitat : Found around coral reefs in shallow areas.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, Andaman Is., Sri Lanka to Japan and Australia to Tuamotu Islands.

Genus *Scorpaenodes* Bleeker, 1857***Scorpaenodes guamensis* (Cuv. & Gaimard, 1824)**

(Fig. 139)

1824. *Scorpaena guamensis* Cuvier & Gaimard, *Voy. Uranie. Zoologie*, p. 326.

1986. *Scorpaenodes guamensis* : Eschmeyer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 472, fig. 149.23.

Material examined : Kadkachang (South Andaman), 1.2.19, 1 ex., 75 mm, Coll : G. C. Rao, Reg. No. 2017; Hutbay (Little Andaman), 22.9.1990, 1 ex., 76 mm, Coll : K. V. Raman & party, Reg. No. 2016; Port Blair (South Andaman), 3 exs., 79-95 mm, Coll : D. V. Rao, Reg. No. 2090; 31.7.1993, 2 exs., 82-90 mm, Coll : D. V. Rao & party, Reg. No. 2940; Chidiyatapu (South Andaman), 2.8.1993, 4 exs., 62-95 mm, Coll : D. V. Rao & party, Reg. No. 2941.

Diagnostic features : D. XIII, 8-9; A. III, 4-5; P. 19; V. I, 5; Lss. 43-44. Depth 2.72-3.0, head 2.6 in standard length; eye 4.2-4.3 in head; scales ctenoid; nasal spine present; few spines in a row under eye. Body dark-brown with dark and light mottlings; fins with brown and white spots in rows; a prominent black spot on upper edge of operculum surrounded by whitish areas.

Habitat : Found in shallow reef and rocky bottoms.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Australia and Palau to Society Islands.

Genus *Scorpaenopsis* Heckel, 1837

Key to species

- 1a Body high behind head and hump-backed; inside of pectoral with a large dark spot and broad sub-marginal dark band; pectoral usually with 17 rays*S. gibbosa*
- 1b Back arched, but no hump; no such markings on pectoral; rays usually 16*S. cirrhosa*

Scorpaenopsis cirrhosa (Thunberg, 1793)

1793. *Perca cirrhosa* Thunberg, *Sevenska Vet. Akad. Hamindgar, Stockholm*, 14 : 119, pl. 7.

1980. *Scorpaenopsis cirrhosa* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 627, fig. 535.

Material examined : Chidiyatapu (South Andaman), 30.8.1989, 1 ex., 158 mm, Coll : H. S. Mehta & party, Reg. No. 2018.

Diagnostic features : D. XII, 9; A. III, 5; P. 16; V. I, 5; Lss. 49. Depth 3.2, head 2.46 in standard length, eye 6.8 in head; villiform teeth on jaws and vomer; palatines edentate; membranous flaps present on jaws, opercular region, on head and body; first three dorsal spines increase in length evenly. Body brownish-green, strongly mottled pattern of dark brown and whitish blotches; all fins with dark spots in rows and marbled.

Habitat : Found on coral reefs and rocky areas.

Distribution : Indo-West Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Australia and Society Islands.

* *Scorpaenopsis gibbosa* Bloch & Schneider, 1801

1801. *Scorpaenopsis gibbosa* Bloch & Schneider, *Syst. Ichthyol.*, p. 192.

1986. *Scorpaenopsis gibbosa* : Eschmeyer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 474, pl. 26.

Material examined : South Bay (Little Andaman), 23.3.1995, 2 exs., 53 mm, Coll : D. V. Rao & party, Reg. No. 2918.

Diagnostic features : D. XII, 9; A. III, 5; P. 17; V. I, 5; Lss. 39. Depth 2.72-2.8, head 2.4-2.45 in standard length, eye 6.2-6.3 in head. Body high behind head, hump-backed; no palatine teeth; rear lacrymal spine not strongly hooked forward; head with ridges and spines; preopercular region scaled; a deep groove below eye; head and body scales with small membranous flaps. Body brownish with a broad brownish area from base of median dorsal spine, obliquely downwards to pectoral and narrow dusky band from soft dorsal towards rays of anal and another band on caudal peduncle; dorsal and anal fins with dark markings, ventral with broad dark band in the middle, margin yellowish.

Habitat : Found under coral rubble.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is. to Japan, and Marsahall to Marquesas Islands.

Genus *Sebastapistes* Gill, 1877*Sebastapistes strongia* (Cuvier, 1829)

1829. *Scorpaena strongia* Cuvier, in Cuv. & Val., *Hist. Nat. Poiss.*, 4 : 323.

1986. *Sebastapistes strongia* : Eschmeyer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 476, fig. 149.39

Material examined : Mayabunder (North Andaman), 8.1.1992, 1 ex., 45 mm, Coll : D. V. Rao, Reg. No. 2440; Rutland (South Andaman), 15.1.1994, 1 ex., 79 mm, Coll : D. V. Rao, Reg. No. 2848.

Diagnostic features : D. XII, 9; A. III, 5; P, 17, V. I, 5; Lss. 42. Depth 2.5, head 2.33 in standard length, eye 3.75 in head; villiform teeth in jaws, vomer and palatines; preorbital with two spines; no flaps on body except a long supraorbital tentacles. Body reddish-brown, mottled with dark bars on lower jaw and a dark area at anterior most three dorsal spines; head and anterior body with yellowish spots.

Habitat : Found around coral reefs and rocky areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Australia and New Hebrides.

Genus *Vespacula* Jordan & Richardson, 1910*Key to species*

- 1a Dorsal with XIII, 7, beginning above hind border of preopercle; ventral I, 5 *V. depressiforms*
- 1b Dorsal with XV, 4; beginning behind eye; ventral I, 4 *V. trachinoides*

Vespacula depressiforms (Richardson, 1848)

1848. *Apistus depressiforms* Richardson, *Zool. Voy. Samarang Fishes*, p. 1.

1962. *Vespacula depressiforms* : de Beaufort & Briggs, *Fishes of Indo-Australian Archipelago*, 11 : 74, fig. 17.

Material examined : Hut Bay (Little Andaman), 22.9.1990, 1 ex., 67 mm, Coll : K. V. Raman & party, Reg. No. 2190.

Diagnostic features : D. XIII, 7; A. III, 5; P. 11; V. I, 5. Depth and head 2.7 in standard length, eye 4.7, snout 3.8 in head; preorbital with two spines; origin of dorsal above hind border of preoperculum; lateral line with 20 tubes. Body brown, fins mottled; caudal fin with dark transverse bands.

Habitat : Found in coastal silty areas with coral rubble.

Distribution : Indo-West Pacific, from Andaman Is. to New Guinea.

****Vespacula trachinoides* (Cuvier, 1829)**

1829. *Apistus trachinoides* Cuvier, in Cuv. & Val., *Hist. Nat. Poiss.*, 4 : 410.

1962. *Vespacula trachinoides* : De Beaufort & Briggs, *Fishes of Indo-Australian Archipelago*, 11 : 73.

Material examined : Port Blair (South Andaman), 19.11.1992, 1 ex., 60 mm, Coll : D. V. Rao, Reg. No. 2189.

Diagnostic features : D. XV, 4; A. III, 4; P. 12; V. I, 4. Depth 3.0, head 2.7 in standard length, eye 5.6 in head, snout equal to eye diameter; origin of dorsal fin before hind border of preopercle. Body reddish-brown, median fins with light-brown narrow bands, pectoral fins with light brown spots.

Habitat : Found in silty-sand areas near coral rubble.

Distribution : Indo-West Pacific, from Andaman Is. to China.

Genus *Tetraroge* Gunther, 1860

Key to species

- 1a A pair of barbels on symphysis of lower jaw ***T. barbata***
- 1b No barbels on lower jaw ***T. niger***

****Tetraroge barbata* (Cuvier, 1829)**

1829. *Apistus barbatus* Cuvier, in Cuv. & Val., *Hist. Nat.*, 4 : 413.

1984. *Tetraroge barbata* : Shimizu, in Masuda *et al*, *Fishes of Japanese Archipelago*, p. 317, pl. 283 E.

Material examined : Chidiyatapu (South Andaman), 30.8.1989, 3 exs., 44-65 mm, Coll : H. S. Mehta & party, Reg. No. 2186; Port Mouth (South Andaman), 26.4.1991, 2 exs., 90 mm, Coll : Kamla Devi, Reg. No. 2187; Mayabunder (North Andaman), 8.1.1992, 2 exs., 48 & 60 mm, Coll : D. V. Rao, Reg. No. 2188.

Diagnostic features : D. XIII, 7-8; A. III, 5; P. 12; V. I, 5. Depth 2.55-2.6, head 2.3-2.4 in standard length, eye 3.8-4.4 in head, equal to interorbital space; two small barbels on anterior tip of lower jaw; preorbital spine long and directed backwards, origin of dorsal above middle of eye; lateral line with 12 tubes; skin naked. Body dark brown with small scattered black spots; dorsal fin brown with narrow white border; caudal fin with light-brown transverse band.

Habitat : Found in inshore shallow silty-sand and coral rubble.

Distribution : Indo-West Pacific, from Andaman Is. to New Guinea and Japan.

***Tetraroge niger* (Cuvier, 1829)**

1829. *Apistus niger* Cuvier, in Cuv. & Val., *Hist. Nat. Poiss.* p. 415.

1962. *Tetraroge niger* : de Beaufort & Briggs, *Fishes of Indo-Australian Archipelago*, 11 : 70, fig. 16.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 90 mm, Coll : G. C. Rao, Reg. No. 1932; Mayabunder (North Andaman), 8.1.1992. 2 exs., 36 & 39 mm, Coll : D. V. Rao, Reg. No. 2015.

Diagnostic features : D. XIII, 7; A. III, 5; P. 12; V. I, 5. Depth 2.5-2.8, head 3.2-3.35 in standard length, eye 4.2-4.6 in head, slightly shorter than snout, no barbels on lower jaw; anterior preorbital spine short, posterior one long; origin of dorsal fin above posterior part of eye; skin covered with small papillae. Body dark brown with irregular dark blotches; all fins with narrow white border and dark broad sub-marginal band; caudal fin white.

Habitat : Found in shallow inshore waters around coral rubble.

Distribution : Indo-Pacific, from coasts of India, Andaman Is., Sri Lanka to Philippines and southern Japan.

Family SYNANCEIIDAE

Body scaleless, except along lateral line; head large; covered with lumps or warts and skin glands; mouth terminal or superior and oblique; eyes directed upwards; lowermost pectoral rays free or not; swim bladder usually absent.

Key to genera

- 1a Lower two pectoral rays separated from rest *Inimicus*
- 1b No free pectoral rays 2
- 2a Dorsal XII-XIV, 6-7; head with deep pits; no spines on upper part of head *Synanceia*
- 2b Dorsal XII, 12-13; head without pits; spines and ridges on head *Polycaulus*

Genus *Inimicus* Jordan & Starks, 1904

Inimicus didactylus (Pallas, 1769)

1769. *Scorpaena didactyla* Pallas, *Special. Zool.*, 7 : 26.

1962. *Inimicus didactylus* : de Beaufort & Briggs, *Fishes of Indo-Australian Archipelago*, 11 : 104, fig. 30.

Material examined : Rutland Is. (South Andaman), 25.1.1994, 1 ex., 77 mm, Coll : D. V. Rao & party, Reg. No. 2825; Bambooflat (South Andaman), 17.5.1994, 1 ex., 99 mm, Coll : P. T. Rajan, Reg. No. 2817.

Diagnostic features : D. XVII, 7; A. II, 10; P. 10+2; V. I, 5. Depth 3.55, head 3.1-3.25 in standard length; snout slightly longer than post-orbital part of head; dorsal origin between first spine of superior postorbital ridge; dorsal membranes deeply incised behind 4th spine; last ray of dorsal and anal fins connected to caudal peduncle; skin and fins with papillae. Body brown with variegated light

and dark brown; head whitish; black blotch between 2nd and 3rd dorsal spine membrane; soft dorsal with broad dark terminal border; edge of anal fin dark; distal part of ventral fin reddish; caudal fin with a basal and sub-terminal dark band.

Habitat : Found on coral rubble.

Distribution : Indo-West Pacific, from Maldives, Andaman Is., to Ryukyu Is. and New Guinea to Caledonia.

Genus *Polycaulus* Gunther, 1860

Polycaulus uranoscopus Bloch & Schneider, 1801

(Fig. 140)

1801. *Polycaulus uranoscopus* Bloch & Schneider, *Syst. Ichth.*, p. 195.

1993. *Polycaulus uranoscopus* : Rajan et al, *J Andaman Sci. Assoc.*, 9 (1 & 2) : 105-106.

Material examined : Bambooflat (South Andaman), 27.4.1993, 1 ex., 64 mm, Coll : P. T. Rajan, Reg. No. 2487.

Diagnostic features : D. XII, 12; A. 14; P. 14; V. I, 5. Depth 3.6, head 3.8 in standard length, eye 6.4 in head, 1.7 in snout; head flattened with bony ridges, eyes directed upwards; preorbital with two spines; supra-orbital ridges connected by a transverse ridge behind eyes; no scales on body; lateral line near dorsal profile with 15 pores. Body light brown; pectoral fins dark brown with small white spots; other fins dark brown, tip of rays white; caudal fin with white spots.

Habitat : Found in muddy areas under stones.

Distribution : Indo-Pacific, from Andaman Is. to China.

Genus *Synanceia* Bloch & Schneider. 1801

Synanceia verrucosa Bloch & Schneider, 1801

1801. *Synanceia verrucosa* Bloch & Schneider, *Syst. Ichth.*, p. 145, pl. 45.

1986. *Synanceia verrucosa* : Eschmeyer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 478, pl. 27, fig. 149.46.

Material examined : Rutland (South Andaman), 16.10.1993, 1 ex., 124 mm, Coll : D. V Rao & party, Reg. No. 2567; 25.1.1994, 1 ex., 205 mm, Coll : D. V. Rao & party, Reg. No. 2680; Outram Is. (Ritchie's Archipelago), 1.3.1994, 1 ex., 55 mm, Coll : D. V. Rao & Party, Reg. No. 2568; Great Nicobar Is. 12.2.1994, 1 ex., 177 mm, Coll : D. V. Rao & party, Reg. No. 2560.

Diagnostic features : D. XIII, 7; A. III, 6; P. 19; V. I, 5. Mouth directed upwards; body globular, covered with warts; eyes far apart; below eye with pit; origin of dorsal above hind border of preopercle; pectoral fin very large and fanlike. Body grey with patches of red and orange.

Habitat : Found on coral rubble and coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman & Nicobar Is. to Japan and Australia, Marshall to Tuamotu Islands.

Family CARACANTHIDAE

Body oval, small; single dorsal fin with notch at spinous portion; ventral fins very small; body covered with small papillae; scales present along lateral line and base of dorsal fin; preopercle with spines.

Genus *Caracanthus* Kroyer, 1844

Caracanthus unipinna (Gray, 1831)

1831. *Micropus unipinna* Gray, *Zool. Miscell.*, p. 20.

1986. *Caracanthus unipinna* : Eschmeyer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 481, ol. 27 fig. 153.2.

Material examined : Rayhill Is. (North Andaman), 19.3.1993, 2 exs., 30-35 mm, Coll : D. V. Rao, Reg. No. 2942; Chidiyatapu (South Andaman), 2.8.1993, 1 ex., 36 mm, Coll : D. V. Rao, Reg. No. 2943.

Diagnostic features : D. VIII, 13; A. II, 12; P. I; V. I, 3. Body covered with papillae; preorbital spine with one knob; dorsal fin continuous, not deeply notched; ventral fins very small. Body uniform brown, bluish-brown on back.

Habitat : Found among branches of *Acropora* corals.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, Maldives, coasts of India, Andaman Is., Sri Lanka to Hawaiian Islands and northwards to Japan.

Family PLATYCEPHALIDAE

Body elongate and cylindrical, head depressed with ridges and spines; mouth large, lower jaw projecting; small sharp teeth in jaws, vomer and palatines; canines present or absent; two dorsal fins well separated; ventral fins widely separated and thoracic in position; gill opening wide; scales on body small, ctenoid; lateral line complete.

Key to genera

- 1a Lateral line scales 72-79; teeth on vomer in one transverse patch; dorsal rays 13 *Platycephalus*
- 1b Lateral line scales 35-55; teeth on vomer in two separate patches; dorsal rays 11-12 2
- 2a Lateral line scales 35-37 *Onigocea*
- 2b Lateral line scales 52-54 3

- 3a Anterior 5 lateral line scales spiny 4
- 3b Anterior 18 lateral line scales spiny *Sorsogona*
- 4a Bony ridge crossing cheek below eye with 3 spines *Cociella*
- 4b Bony ridge crossing cheek below eye with more than 3 spines *Thysanophrys*

Genus *Cociella* Whitely, 1940

Cociella crocodila (Tilesius, 1812)

1812. *Platycephalus crocodilus* Tilesius, *Krusenstern's Reise*, pl. 59, fig. 2.

1986. *Cociella crocodila* : Kaup, in Smith & Heemstra, *Smith's Sea Fishes*, p. 483, fig. 155.1.

Material examined : Pilomillow Is. (Nicobar Group), 16.11.1989, 1 ex., 146 mm, Coll : H. S. Mehta & party, Reg. No. 1583.

Diagnostic features : D. I + VII, 11; A. 11; P. 20; V. I, 5; Ll. 54. Depth 8.2, head 3.0 in standard length, maxillary reaching to front border of eye; two short spines between anterior nostrils; supra-orbital ridge serrated posteriorly; superior post-orbital ridge with two spines; opercular spines 2; anterior three scales of lateral line with spines. Body brownish with many small dark spots on upper side; back with 4 cross bands; spinous dorsal with a broad black band near edge; all fins dusky.

Habitat : Found under coral stones.

Distribution : Indo-West Pacific, from east coast of Africa, Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan and southwards Palau to New Hebrides.

Genus *Onigocia* Jordan & Thunberg, 1903

**Onigocia oligolepis* (Regan, 1908)

1908. *Platycephalus oligolepis* Regan, *Trans. Linn. Soc., London*, pt. 3, 12 : 238, pl. 29, fig. 4.

1986. *Onigocia oligolepis* : Knapp, in Smith & Heemstra, *Smith's Sea Fishes*, p. 483, pl. 30.

Material examined : Rutland Is. (South Andaman), 25.1.1994, 2 exs., 65 & 75 mm, Coll : D. V. Rao & party, Reg. No. 2506.

Diagnostic features : D. I + VIII, 11; A. 11; P. 22; V. I, 5; Ll. 36-37. Depth 5.8 - 6.1, head 2.5 in standard length; eye 3.7 in head; teeth on vomer in two patches; supra-orbital ridge spiny; few anterior lateral line scales spiny; predorsal scale rows 5. Body light brown above, whitish below; back and sides with dark cross bands; head with distinct brown bar through eye and white and brown mottling; fins brown with mottling; prominent black blotch on ventral fin.

Habitat : Found on coral-sand bottom near reefs.

Distribution : Indo-West Pacific, from Natal, Andaman Is., New Guinea and Australia.

Genus *Platycephalus* Bloch, 1795*Platycephalus indicus* (Linnaeus, 1758)

1758. *Callionymus indicus* Linnaeus, *Syst. Nat.*, ed. 10, p. 250.

1986. *Platycephalus indicus* : Knapp, in Smith & Heemstra, *Smith's Sea Fishes*, p. 484, pl. 29.

Material examined : Diglipur (North Andaman), 19.2.1990, 2 exs., 282 & 292 mm, Coll : G. C. Rao & party, Reg. No. 1952; Chidiyatapu (South Andaman), 2.8.1993, 1 ex., 290 mm, Coll : D. V. Rao, Reg. No. 3042.

Diagnostic features : D. I + VIII + I, 13; A. 13; P. 18-19; V. I, 5; 11. 73-79. Depth 10.4 – 11.2, head 3.1 – 3.25 in standard length; teeth on vomer in one patch; head with bony ridges; a small preopercular and two preocular spines present. Body greyish above, whitish below; caudal fin with 2 horizontal black stripes; first dorsal fin black.

Habitat : Found in shallow sandy areas near reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and south to Australia.

Genus *Sorsogona* Herre, 1934*Sorsogona tuberculata* (Cuvier, 1829)

1829. *Platycephalus tuberculata* Cuvier, in Cuv. & Val. *Hist. Nat. Poiss.*, 4 : 258.

1993. *Sorsogona tuberculata* : Rao *et al*, *J Andaman Sci. Assoc.*, 9 (1 & 2) : 52.

Diagnostic features : D. VIII + 11; A. 11; P. 20; V. I, 5 L1. 51. Inter-orbital space concave; body compressed; head ridged and spiny; supra-ocular rim and opercular ridge serrated; teeth on vomer in two patches; 3 strong spines on anterior orbital rim; anterior 18 lateral line scales with spines; caudal fin rounded. Body brown above, white below, with dark mottling and indistinct vertical bands; spinous dorsal black; other fins spotted.

Habitat : Found on sandy areas near reefs.

Distribution : Indo-West Pacific, from Natal to Maldives, coasts of India, Andaman Is., Sri Lanka to Philippines and Queensland.

Genus *Thysanophrys* Ogilby, 1898*Thysanophrys carbunculus* (Valenciennes, 1833)

1833. *Platycephalus carbunculus* Valenciennes, *Hist. Nat. Poiss.*, 9 : 461.

1993. *Thysanophrys carbunculus* : Rao *et al*, *J Andaman Sci. Assoc.*, 9 (1 & 2) : 51.

Material examined : Hut Bay (Little Andaman), 26.10.1991, 1 ex. 92 mm, Coll : P. T. Rajan, Reg. No. 2050.

Diagnostic features : D. VIII + 11; A. 12; P. 18; V. I, 5; Ll. 4. Depth 7.7, head 3.0 in standard length; eye 4.2 in head, 1.1 in snout; teeth in two patches on vomer; a spine in front of eye; a small tentacle on eye; anterior 5 lateral line scales spiny; sub-orbital ridge serrated. Body light brown, white below; irregular dark brown bands on head and body; a dark brown blotch below eye; outer half of dorsal fins with irregular spots; pectoral, ventral and caudal fins with row of dark spots.

Habitat : Found on sandy areas around coral rubble.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. to Philippines and Celebes Islands.

Order PERCIFORMES

The Perciformes is the largest order of fishes. The common characters of the fishes are the presence of spines in dorsal, anal and ventral fins; no adipose fin; scales mostly ctenoid or absent; ventral fins thoracic or jugular; upper jaw bordered by premaxilla; branchiostegal rays 7 or fewer; caudal skeleton with 5 or fewer hypurals.

Family CENTROPOMIDAE

Body oblong, slightly compressed; mouth large; conical teeth on jaws and palate; opercle with small spine; dorsal fin notched between spinous and rayed portions; caudal fin rounded; scales ctenoid; cheeks and operculum scaly; sheath at base of dorsal and anal fins; lateral line continued onto caudal fin.

Genus *Lates* Cuvier, 1828

Lates calcarifer (Bloch, 1790)

1790. *Holocentrus calcarifer* Bloch, *Nat. Ausland Fische*, 4 : 100, pl. 244.

1984. *Lates calcarifer* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 356, fig. 140.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 248 mm, Coll : G. C. Rao & party, Reg. No. 1829.

Diagnostic features : D. VIII, 10; A. III, 8; P. 17; V. I, 5. Body elongate and moderately compressed; caudal peduncle very deep; head pointed with concave dorsal profile, becoming convex in front of dorsal fin; mouth large; upper jaw extending to behind eye; opercle with small spine; preopercle with spine in angle; deep notch between spinous and soft portions of dorsal; scales large, ctenoid. Body blue-green above and silvery below; eyes bright pink.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-Pacific region.

Family AMBASSIDAE

Body oblong, compressed; single dorsal fin, but deeply notched; dorsal and anal fins with low scaly sheath; scales thin, cycloid and deciduous; opercle ending in a membraneous flap; maxilla naked; small teeth in jaws, vomer and palatines; lateral line complete or interrupted; caudal fin forked.

Genus *Ambassis* Cuvier, 1828*Key to species*

- 1a Lateral line once interrupted; cheek with one transverse row of scales *S. urotaenia*
- 1b Lateral line twice interrupted; cheek with transverse rows of scales 2
- 2a Inter-opercle margin serrated; a brilliant white patch on distal portion of membrane between 2nd and 3rd anal spines *S. interrupta*
- 2b Inter-opercle margin smooth *S. buruensis*

Ambassis buruensis Bleeker, 1856

1856. *Ambassis buruensis* Bleeker, *Nat. Tijdr. Ned. Indie.*, 11 : 396.

1929. *Ambassis buruensis* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago* 5 : 417.

Material examined : Chidiyatapu (South Andaman), 23.7.1987, 1 ex. 71 mm, Coll : H. S. Mehta & party, Reg. No. 2030.

Diagnostic features : D. VII, I, 9; A. III, 9; P. 14; V. I, 5; Ll. 28; Ltr. 3 + 1 + 7. Depth 2.4, head 2.5 in standard length; eye 2.7 in head, mouth oblique; sub-orbital ridge smooth, ending in a spine, preorbital with blunt serrations; cheek with two transverse rows of scales; predorsal scales 13; lateral line once interrupted, Body light yellowish with a bright silvery band from operculum to median caudal rays; pale black stripe along middle of sides of caudal peduncle; membrane between 2nd and 3rd dorsal spine blackish, caudal lobes dusky.

Habitat : Found in coastal waters and creeks.

Distribution : Indo-West Pacific, from Andaman Is., to Japan.

Ambassis interruptus Bleeker, 1852

1852. *Ambassis interrupta* Bleeker, *Nat. Tijd. Ned. Indie.*, 3 : 696.

1991. *Ambassis interruptus* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 796.

Material examined : Kadkachang (South Andaman), 7.4.1989, 21 exs., 54-76 mm, Coll : H. S. Mehta & party, Reg. No. 1547; Diglipur (North Andaman), 19.5.1989, 3 exs., 55-67 mm, Coll : H. S. Mehta & party, Reg. No. 1542.

Diagnostic features : D. VII, I, 9; A. III, 9; P. 14; V. I, 5; Ll. 25-26; Ltr. 3 + 1 + 8. Body deep and compressed; dorsal profile of head almost straight; depth 2.2, head 2.8-3.0 in standard length; eye

2.5-2.6 in head; snout equal to inter-orbital space; maxillary reaching to front border of eye; sub-orbital ridge smooth, ending in a indistinct spine, preorbital and pre-opercular ridge and edge denticulated; lateral line once interrupted; predorsal scales 16-19; cheek with two scale rows. Body silvery with a narrow lateral stripe; 2nd dorsal spine bright orange; a brilliant white patch on distal portion of membranes between 2nd and 3rd anal spines; a dark band along caudal lobes.

Habitat : Found in shallow coastal waters and creeks.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. to Japan and Australia.

***Ambassis urotaenia* Bleeker, 1852**

1852. *Ambassis urotaenia* Bleeker, *Nat. Tijd, Ned, Indie.*, 3 : 257.

1991. *Ambassis urotaenia* : Talwar & Jhingran, *Inland fishes of India and Adjacent Countries*, 2 : 799.

Material examined : Chidiyatapu (South Andaman), 23.8.1987, 5 exs., 66-77 mm, Coll : H. S. Mehta & party, Reg. No. 2019; Red Skin Is. (South Andaman), 6.12.1990, 16 exs., 54-65 mm, Coll : K. V. Raman & party, Reg. No. 2036.

Diagnostic features : D. VII, I, 9; A. III, 9; P. 15; V. I, 5; Ll. 26; Ltr. 2 + 1 + 7. Depth 2.4-2.55, head 2.7-2.8 in standard length; eye 2.5-2.55 in head. Sub-orbital ridge smooth; preorbital ridge serrate; preopercle strongly denticulated on both ridge and edge; lateral line interrupted twice; predorsal scales 8; cheek with one row of scales. Body silvery-yellow with bright silvery lateral band from head to caudal; membrane between 2nd and 3rd spines of dorsal and caudal lobes black.

Habitat : Found in shallow coastal waters and creeks.

Distribution : Indo-West Pacific, from Seychelles, coasts of India, Andaman Is., Sri Lanka to southern Japan, Caroline and Fiji Islands.

Family SERRANIDAE

Body oblong to moderately elongate, somewhat compressed; mouth large oblique; lower jaw usually protruding; maxilla exposed; supra-maxilla present or absent; small slender teeth on jaws; vomer and palatines edentate; opercle with 3 flat spines; end of pre-opercle serrate; gill membranes free from isthmus; scales cycloid or ctenoid; lateral line complete; dorsal, anal and caudal fins scaly; caudal fin rounded or emarginate.

Key to sub-families

- 1a Body scales small; lateral line scales indistinct, usually smaller than body scales; scaly flap of skin joining upper part of pectoral base to body EPINEPHELINAE
- 1b Body scales usually larger; lateral line scales distinct; no scaly flap of skin at upper end of pectoral ANTHIINAE

Sub Family ANTHIINAE

Genus *Anthias* Bloch, 1792*Anthias squamipinnis* Peters, 18551855. *Serranus (Anthias) squamipinnis* Peters, *Monatsb. Akad. Wiss. Berlin*, p. 429.1986. *Anthias squamipinnis* : Heemstra & Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 512, pl. 32.

Material examined : Port Blair (South Andaman), 22.8.1993, 3 exs., 58-63 mm, CoLL : A. Mustafa (D. O. D. collection).

Diagnostic features : D. X, 15; A. III, 6; P. 16; V. I, 5; L1. 39-40. Depth 2.52-2.9, head 3.0-3.1 in standard length; axillary scales present; dorsal and anal fins scaled; 3rd dorsal spine slightly elongate; scale rows around caudal peduncle 24; caudal fin lunate. Body orange yellow with yellow spot on each scale; a broad light pink band edged grey from eye to base of pectoral.

Habitat : Found around shallow coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Marshall Islands.

Sub Family EPINEPHELINAE

Key to genera

- 1a Dorsal fin VII-VIII, 10-11; vertical edge of preopercle smooth, lower edge with 3-4 antorse spines ***Plectropomus***
- 1b Dorsal fin IX-XI, 13-19; Vertical edge of pre-opercle serrate, lower edge without antorse spines 2
- 2a Rear nostril a long vertical slit; head profile concave; dorsal spines X ***Cromileptes***
- 2b Rear nostril round or oblong; head profile straight or concave; dorsal spines IX or XI 3
- 3a Dorsal fin IX, 13-14; caudal fin strongly lunate, lobes produced; gill rakers rudimentary ***Variola***
- 3b Caudal fin truncate, rounded or emarginate; all gill rakers not rudimentary 4
- 4a Body elongate, compressed; palatine edentate ***Anyperodon***
- 4b Body of most species not elongate; palatine dentate 5
- 5a Body depth 2.1-2.5 in SL; dorsal spines IX; caudal fin truncate; 5th or 6th pectoral ray longest ***Aethaloperca***
- 5b Body depth 2.3-3.8 in SL; dorsal spines IX or XI; caudal fin rounded to emarginate; middle rays of pectoral fin long 6

- 6a Dorsal spines IX; posterior corner of maxilla with a distinct knob *Cephalopholis*
6b Dorsal spines XI; maxilla without knob *Epinephelus*

Genus *Aethaloperca* Fowler, 1904

Aethaloperca rogaa (Forsskal, 1775)

1775. *Perca rogaa* Forsskal, *Descript. Animal*, p. 38.

1992. *Aethaloperca rogaa* : Rao *et al*, *J Andaman Sci Assoc.*, 8 (1) : 47, fig. 1.

Material examined : Barren Is. (North Andaman), 25.3.1990, 1 ex., 295 mm, Coll : P. T. Rajan, Reg. No. 2126.

Diagnostic features : D. IX, 18; A. III, 9; P. 17; V. I, 5; Ll. 53. Depth 2.4, head 2.75 in standard length; eye 6.2 in head. Dorsal profile of head straight to eye becoming convex on nape; lower jaw projecting; origin of dorsal over opercle; ventro-posterior corner of maxilla with a bony protruberance; ventral fin reaching beyond anus. Body dark brown with a white bar on abdomen; outer part of spinous dorsal brownish-red; maxillary groove and mouth orange-red.

Habitat : Found around coral reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan, and Australia to Fiji.

Genus *Anyperodon* Gunther, 1859

Anyperodon leucogrammicus (Valenciennes, 1828)

1828. *Anyperodon leucogrammicus* Valenciennes, in Cuv. & Val., *Hist. Nat. Poiss.*, p. 347.

1991. *Anyperodon leucogrammicus* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 23, pl. 1B, fig. 3, 4.

Material examined : Mayabunder (North Andaman), 17.8.1991, 1 ex., 300 mm, Coll : K. Chandra & party, Reg. No. 1706; Shoal Bay (South Andaman), 19.10.1992, 1 ex., 327 mm, Coll : P. T. Rajan, Reg. No. 2077; Mayabunder (North Andaman), 20.3.1993, 1 ex., 334 mm, Coll : G. C. Rao & party, Reg. No. 2250.

Diagnostic features : D. XI, 15-16; A. III, 8-9; P. 17; V. I, 5; Ll. 66-71. Body elongate, head pointed, lower jaw projecting; posterior nostril vertically elongate; caudal fin rounded; Body brownish-grey with numerous orange-red spots on head, body and dorsal fin; four longitudinal whitish streaks on head and body.

Habitat : Found around protected reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman & Nicobar Is., to Ryukyu Is., and Australia to New Caledonia.

Genus *Cephalopholis* Schneider, 1801*Key to species*

- 1a Anal rays 8; scales on abdomen ctenoid; body dark brown 2
- 1b Anal rays 9; scales on abdomen cycloid; body red or reddish yellow 5
- 2a Dark-edged pale spots or small dark spots on head and body 3
- 2b No dark edged spots or small dark spots on head and anterior part of body 4
- 3a Soft dorsal rays usually 15; pectoral fin 1.35-1.55 in head; Lss. 84-98; dark-edged blue spots on head and body; pectoral fin dark brown *C. microprion*
- 3b Soft dorsal rays 16; pectoral fin 1.55-1.8 in head; dark edged blue spots on head, body and basally on median fins; adults with pale spots which form irregular bars on the body; pectoral with black margin and broad orange sub-marginal zone *C. cyanostigma*
- 4a Pectoral fin short, 1.55-1.8 in head; body brown with blue stripes on head, body and fins; no white margin on median fins *C. formosa*
- 4b Pectoral fins 1.3-1.6 in head; body with 7-8 slightly dark brown bars; head with dark brown bands radiating from eye; bluish-white margin on median fins *C. boenak*
- 5a Soft dorsal with 16 or 17 rays; auxillary scales present on body dark brown with dark edged blue spots on head, body and fins; 5-6 pale bars on posterior part of body *C. argus*
- 5b Soft dorsal with 14-15 rays; no auxillary scales; colour not as in 5a 6
- 6a Lateral line scales 65-80 Lss. 115-135; pectoral rays 18-20; body slightly deep, depth 2.3-2.7 in SL; reddish-brown with scattered small whitish blotches *C. sonnerati*
- 6b Lateral line scales 45-68; Lss. 79-120; pectoral rays 16-18; body not deep, depth 2.2-2.35 in SL; colour not an in 6a 7
- 7a Lateral line scales 54-68; body reddish-brown; caudal fin blackish-red centro-basally with pale blotches; pectoral reddish-brown, distal part black *C. urodeta*
- 7b Lateral line scales 47-55; body orange-red, numerous bright blue spots on head, body and median fins; margin of median fins narrow blue; pectoral fin orange-yellow *C. miniata*

Cephalopholis argus Schneider, 1801

1801. *Cephalopholis argus* Schneider, in Bloch & Sch., *Syst. Ichth.*, p. 311, pl. 61.

1991. *Cephalopholis argus* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 33, pl. 1 D, fig. 7.

Material examined : Mayabunder (North Andaman), 17.8.1991, 1 ex., 180 mm, Coll : K. Chandra & party, Reg. No. 1700; Wandoor (South Andaman), 19.8.1992, 1 ex., 195 mm, Coll : D. V Rao & party, Reg. No. 1960; Bambooflat (South Andaman), 30.11.1992, 1 ex., 165 mm, Coll : P. T. Rajan, Reg. No. 2136.

Diagnostic features : D. IX, 15-16; A. III, 9; P. 17; V. I, 5; Ll. 48-51. Depth 3.2-3.45, head 2.4-2.63 in standard length; auxillary scales present on body; snout and maxilla scaled. Body dark brown with numerous small black edged blue spots on margin of median and pectoral fins narrowly white.

Habitat : Found in shallow reef reas.

Distribution : Indo-Pacific, from Red Sea, Seychelles to coasts of India, Andaman Is. to Ryukyu Is. and Australia to Marquesas.

***Cephalopholis boenak* (Bloch, 1790)**

1790. *Bodianus boenak* Bloch, *Nat. Ausland Fische.*, 4 : 43, pl. 226.

1991. *Cephalopholis boenak* : Randall & Heemstra, *Indo-Pacific Fishes* , (20) : 39, pl. 2B, fig : 10.

Material examined : Bambooflat (South Andaman), 2.8.1991, 2 exs., 142 & 156 mm, Coll : P. T. Rajan, Reg. No. 1717; 30.11.1992, 1 ex., 95 mm, Coll : P. T. Rajan, Reg. No. 2137; Havelock Is. (Ritchie's Archipelago), 21.9.1991, 2 exs., 120 & 165 mm, Coll : D. V. Rao, Reg. No. 1811; Hut Bay (Little Andaman), 23.10.1991, 1 ex., 120 mm, Coll : P. T. Rajan, Reg. No. 2105; Shoal Bay (South Andaman) 19.10.1992, 1 ex., 170 mm, Coll : Kamla Devi, Reg. No. 2078.

Diagnostic features : D. IX, 15-16; A, III, 8; P. 15-16; V. I, 5; Ll. 47-51. Depth 2.6-2.9, head 2.5-2.6 in standard length; maxilla naked; snout scaled. Body brown with 8-9 blackish-brown bars; a blackish-brown spot between upper and middle opercular spines; fins dark brown; margin of median fins white; inside of mouth light orange-red.

Habitat : Found around protected reef areas.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman & Nicobar Is. to Ryukyu Is., and Australia to New Caledonia.

***Cephalopholis cyanostigma* (Valenciennes, 1828)**

1828. *Serranus cyanostigma* Valenciennes, in Cuv. & Val. *Hist. Nat. Poiss.*, 2 : 352.

1992. *Cephalopholis cyanostigma* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8 (1) : 48.

Material examined : Barren Is. (North Andaman), 25.3.1990, 1 ex., 250 mm, Coll : P. T. Rajan, Reg. No. 2380; North Reef Is. (North Andaman), 11.3.1993, 1 ex., 218 mm, Coll : G. C. Rao & party, Reg. No. 2320.

Diagnostic features : D. IX, 15; A. III, 8; P. 16; V. I, 5; Ll. 59. Depth 2.75, head 2.4-2.45 in standard length; lower jaw strongly projecting; maxillary reaching beyond hind border of eye; snout and maxilla scaled; Body brownish-red with numerous small black edged blue spots on head, body and fins, outer part of pectoral fin without spots; margin of dorsal and anal fins white.

Habitat : Found around shallow reef areas near grass beds.

Distribution : Indo-West Pacific, from Andaman Is. through Philippines to Queensland and Solomon Islands.

***Cephalopholis formosa* (Shaw & Nodder, 1812)**

1812. *Sciaena formosa* Shaw & Nodder, *Nat Misc.*, pl. 1007.

1991. *Cephalopholis formosa* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 43, pl. 3A, fig. 14.

Material examined : Shoal Bay (South Andaman), 12.7.1992, 1 ex., 253 mm, Coll : P. T. Rajan, Reg. No. 1882.

Diagnostic features : D. IX, 16; A. III, 8; P. 16; V. I, 5; Ll. 49. Depth 2.7, head 2.5 in standard length; snout scaled, maxilla partially scaled. Body dark brown with wavy longitudinal dark-blue lines; snout, lips and ventral part of head with scattered small blue spots.

Habitat : Found on reefs.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is., Sri Lanka, to Japan and Australia.

***Cephalopholis microprion* (Bleeker, 1852)**

(Fig. 141)

1852. *Serranus microprion* Bleeker, *Nat. Tijds. Ned. Indie.*, 3 : 552.

1992. *Cephalopholis microprion* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8 (1) : 48, fig. 2.

Material examined : Shoal Bay (South Andaman), 19.10.1992, 1 ex., 145 mm, Coll : P. T. Rajan, Reg. No. 2127.

Diagnostic features : D. IX, 15; A. III, 8; P. 16; V. I, 5; Ll. 49. Depth 2.8, head 2.35 in standard length; snout anterior to nostrils and maxilla naked; ventral margin of preopercle fleshy. Body dark brown with 6 dark bars; head and body with small dark edged blue spots; margin of median fins grey-blue.

Habitat : Found around silty-coral rubble areas.

Distribution : Indo-West Pacific, from Andaman Is. to Great Barrier Reef, Solomon and New Calendonia.

***Cephalopholis miniata* (Forsskal, 1775)**

1775. *Perca miniata* Forsskal, *Descript. Animal*, p. 41.

1991. *Cephalopholis miniata* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 54, pl. 4B, fig. 21.

Material examined : Diglipur (North Andaman), 17.10.1990, 2 exs., 170 & 179 mm, Coll : G. C. Rao & party, Reg. No. 1701; Mayabunder (North Andaman), 20.3.1993, 1 ex., 273 mm, Coll : G. C. Rao & party, Reg. No. 2249; Narcondam Is. (North Andaman), 13.3.1994, 2 ex., 276 mm, Coll : D. V. Rao, Reg. No. 2549.

Diagnostic features : D. IX, 15; A. III, 8-9; P. 18; V. I, 5; Ll. 49-52. Depth 2.82-2.95, head 2.5-2.58 in standard length, snout naked; maxillary partially scaled. Body reddish-brown, with bright-blue spots on head, body and on median fins, extending onto maxillary and lips; paired fins orange yellow.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman & Nicobar Is., Sri Lanka to Japan and Australia.

***Cephalopholis sonnerati* (Valenciennes, 1828)**

1828. *Serranus sonnerati* Valenciennes, in Civ. & Val., *Hist. Nat. Poiss.*, 2 : 299.

1991. *Cephalopholis sonnerati* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 63, pl. 5 B, C, Fig. 27, 28.

Material examined : Port Blair (South Andaman), 24.8.1993, 1 ex., 175 mm, Coll : D. V. Rao, Reg. No. 2412.

Diagnostic features : D. IX, 15, A. III, 9; P. 20; V. I, 5; Ll. 78. Depth 2.48, head 2.53 in standard length; nape prominently convex; maxilla extending well beyond rear of orbit; median fins fleshy at their bases. Body orange-red, scattered small white blotches on body and fins; head reddish-brown with numerous close-set orange-red spots; fins darker than body; margin of median fins white.

Habitat : Found on coral reef areas.

Distribution : Wide spread in Indo-Pacific region.

***Cephalopholis urodeta* (Forster, 1801)**

1801. *Percam urodetam* Forster, in Bloch. & Sch. *Syst. Ichth.*, p. 333.

1992. *Cephalopholis urodeta* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8 (1) : 48.

Material examined : Port Blair (South Andaman), 8.10.1992, 2 exs., 124 & 140 mm, Coll : D. V. Rao & party, Reg. No. 2128; Outram Is. (Ritchie's Archipelago), 1.3.1994, 2 exs., 154 & 168 mm, Coll : D. V. Rao & party, Reg. No. 2620.

Diagnostic features : D. IX, 15; A. III, 9; P. 17-18; V. I, 5; Ll. 56-60. Depth 2.9-3.1, head 1.5-2.6 in standard length; maxilla scaled. Body reddish-brown, darker posteriorly with 6 broad irregular

dark bars on the body; head and nape with small numerous close-set orange-red spots; a pair of dark spots at the edge of lower lip; soft dorsal and anal fins with orange-red submarginal band; caudal reddish-brown with small pale blotches.

Habitat : Found around shallow reef areas.

Distribution : Indo-Pacific, from Zanzibar to Maldives, Andaman Is., Sri Lanka to Japan and Australia to New Guinea.

Genus *Chromileptes* Swainson, 1839

Chromileptes altivelis (Valenciennes, 1829)

1828. *Serranus altivelis* Valenciennes, *Hist. Nat. Poiss.*, 2 : 324.

1991. *Chromileptes altivelis* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 73, pl. 5C, fig. 33.

Material examined : Campbell Bay (Great Nicobar), 26.6.1982, 1 ex., 136 mm, Coll : N. Mohan, Reg. No. 1332.

Diagnostic features : D. X, 18; A. III, 10; P. 18; V. I, 5; Ll. 58. Depth 2.85, head 2.65 in standard length; dorsal profile of head very concave and straight to above posterior half of orbit; pair of small canines in upper jaw; caudal fin rounded. Body greenish-brown with scattered round black spots on head, body and fins.

Habitat : Found in reef areas.

Distribution : Indo-West Pacific, from Great Nicobar Is. to Japan, Australia, New Guinea and New Caledonia.

Genus *Epinephelus* Bloch, 1793

Key to species

- 1a Caudal fin emarginate to truncate 2
- 1b Caudal fin rounded 4
- 2a Spinous dorsal fin membrane incised, body and fins with numerous reddish to polygonal brown spots *E. areolatus*
- 2b Spinous dorsal fin not incised, body and fins without spots 3
- 3a Dorsal fin IX, 17-19; head with small yellowish brown dots; sides with wavy longitudinal yellowish-brown lines *E. undulosus*
- 3b Dorsal fin IX, 15-17; body deep-blue; fins and caudal peduncle deep yellow *E. flavocaeruleus*
- 4a Lateral line scales with branched tubules; eyes small, 8.0 or slightly more in head *E. lanceolatus*

4b	Lateral line scales with single tubule; eyes not small, less than 7.0 in head.....	5
5a	Distinct dark spots on head and body	6
5b	No distinct dark spots on head and body	14
6a	Lateral line scales 46-53.....	7
6b	Lateral line scales 55-74	10
7a	Scales on body cycloid; body and fins with round to polygonal black spots <i>E. macrospilos</i>	
7b	Scales on body ctenoid	8
8a	Dark spots on body diagonally elongate, more crowded posteriorly <i>E. longispinis</i>	
8b	Dark spots on body not elongate	9
9a	Large close-set hexagonal to roundish brown spots on body and head; two oblique brown bands on thorax; pectoral fins relatively long, 1.2-1.6 in head; serrae at corner of preopercle large <i>E. quoyanus</i>	
9b	Pectoral fins not long, 1.4-2.0 in head; serrae of preopercle moderately enlarged; hexagonal to roundish spots on body and head; spots on pectoral fin small, confined to rays <i>E. merra</i>	
10a	Most spots on body polygonal and close-set, only pale lines separating spots; scales ctenoid	11
10b	Most spots on body round or oblong and well separated; scales ctenoid or cycloid	12
11a	Large black blotch on back at rear base of spinous dorsal, extends onto fin base; small black spots at front of upper lip in two irregular horizontal rows..... <i>E. melanostigma</i>	
11b	Three or 4 large black blotches on back along base of dorsal fin and caudal peduncle, not extending onto margin; black spots at front of upper lip in 3-4 rows <i>E. spilotoceps</i>	
12a	Soft dorsal rays 14; lateral line scales 53-58, light yellowish-brown with large irregular dark brown spots on head and body; saddle-like black spot on caudal peduncle; close set dark spots on head, body and fins; scales cycloid <i>E. fuscoguttatus</i>	
12b	Soft dorsal rays 15-16; lateral line scales 53-74; colour not as in 12a	13
13a	Spots on head and body black and small scattered small pale spots on head and body; 4-5 rows of teeth on mid-side of lower jaw <i>E. malabaricus</i>	
13b	Spots on head and body reddish-brown and moderate in size; 2-3 rows of teeth on mid-side of lower jaw	<i>E. coioides</i>

- 14a Spinous dorsal membrane slightly incised; body dark brown with irregular pale blotches; 1-2 dark streaks on cheek and operculum *E. erythrurus*
- 14b Spinous dorsal fin membrane incised; colour not as in 14a; two diagonal brown streaks on cheek and operculum 15
- 15a Outer triangular part of each spinous membrane of dorsal fin black; edge of orbit black; 5 faint dark bars present on body *E. fasciatus*
- 15b Spinous portion of dorsal membrane not black; rim of orbit not black; dark bars present or absent 16
- 16a Dorsal fin rays 16; pectoral rays 18; body brownish-grey with numerous small white spots and scattered whitish blotches on body, postorbital, head and dorsal fin
..... *E. caeruleopunctatus*
- 16b Dorsal fin rays 15; pectoral rays 16; body brown with numerous white spots tend to form irregular horizontal rows and stripes; margin of median fins black *E. ongus*

***Epinephelus areolatus* (Forsskal, 1775)**

1775. *Perca areolata* Forsskal, *Descript. Animal.*, p. 42.

1991. *Epinephelus areolatus* : Randall & Heemstra, *Indo Pacific Fishes*, (20) : 99, pl. 8A, fig. 43.

Material examined : Diglipur (North Andaman), 17.2.1990, 1 ex., 163 mm, Coll : G. C. Rao & party, Reg. No. 1702; Havelock Is. (Ritchie's Archipelago), 19.11.1991, 1 ex., 225 mm, Coll : D. V. Rao & party, Reg. No. 1751; Port Blair (South Andaman), 8.10.1992, 1 ex., 156 mm, Coll : D. V. Rao. Reg. No. 2075.

Diagnostic features : D. XI, 15-16; A. III, 8; P. 17-18; V. I, 5; Ll. 49-51. Depth 2.8-3.2, head 2.52-2.65 in standard length; two rows of teeth on sides of lower jaw; auxillary scales present on body; spinous dorsal membrane incised; caudal fin emarginate. Body whitish with numerous close-set roundish to polygonal yellowish brown spots on head, body and fins; spots on pectoral fin small and confined to rays; narrow white border posteriorly on caudal fin.

Habitat : Found on silty bottom around dead coral patches.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is. to Japan and Queensland.

***Epinephelus caeruleopunctatus* (Bloch, 1790)**

1790. *Holocentrus caeruleopunctatus* Bloch, *Nat. Ausland Fische.*, p. 94, pl. 242, fig. 2.

1991. *Epinephelus caeruleopunctatus* : Randall & Heemstra, *Indo Pacific Fishes*, (20) : 111, pl. 9B, fig. 51-53.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 182 mm, Coll : G. C. Rao & party, Reg. No. 2126; Port Blair (South Andaman), 26.4.1991, 2 exs., 85 & 92 mm, Coll : Kamla

Devi, Reg. No. 2079; Car Nicobar Is. 10.9.1988, 1 ex., 65 mm, Coll : H. S. Mehta & party, Reg. No. 2106; Great Nicobar Is. 9.2.1994, 3 exs., 176-185 mm, Coll : D. V. Rao, Reg. No. 2578; Tarmugli Is. (South Andaman), 2.9.1993, 1 ex., 45mm, Coll : D. V. Rao & party, Reg. No. 2795.

Diagnostic features : D. XI, 15-16; A, III, 8; P. 17-18; V. I, 5; Ll. 53-59. Depth 3.0-3.25, head 2.38-2.5 in standard length; 3-4 rows of teeth on sides of jaw; spinous dorsal membrane incised. Body brownish; posterior head region; body and dorsal with scattered large whitish spots and some form pale mottlings; dorsal, caudal and pectoral fins with narrow white margin; upper edge of maxillary groove black; juveniles with scattered white spots.

Habitat : Found near reef areas and caves; juveniles found in tidepools.

Distribution : Indo-West Pacific, from Persian Gulf, east coast of Africa, Islands of Western Indian Ocean, coasts of India, Andaman Is., Sri Lanka to Japan and Palau to Fiji.

***Epinephelus coioides* (Hamilton, 1822)**

1822. *Bola coioides* Hamilton, *Fishes of Ganges*, p. 82.

1991. *Epinephelus coioides* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 122, pl. 10A, fig. 59.

Material examined : Shoal Bay (South Andaman), 19.10.1992, 1 ex., 284 mm, Coll : Kamla Devi, Reg. No. 2076; Bambooflat (South Andaman), 26.10.1992, 1 ex, 190 mm, Coll : P. T. Rajan, Reg. No. 2165.

Diagnostic features : D. XI, 15; A. III, 8; P. 19-20; V. I, 5; Ll. 58-62. Depth 3.4, head 2.4 in standard length, body elongate and not much compressed; interorbital space slightly convex; 4th dorsal spine usually longest; caudal fin rounded; ventral fins not reaching anus. Body light brown, whitish ventro-laterally, with numerous brownish orange spots on head and body; five slightly oblique brown bars on head and body which bifurcate ventrally, the first four bars extending basally into dorsal fin; large brown blotches on head; fins whitish to dusky with brown spots.

Habitat : Found in reef areas.

Distribution : Wide spread in Indo-West Pacific region.

***Epinephelus erythrurus* (Valenciennes, 1828)**

1828. *Serranus erythrurus* Valenciennes, in Cuv. & Val. *Hist. Nat. Poiss.*, 2 : 320.

1992. *Epinephelus erythrurus* : Rao et al, *J. Andaman Sci. Assoc.*, 8(1) : 49, fig. 3.

Material examined : Shoal Bay (South Andaman), 3.11.1992, 1 ex., 250 mm, Coll : P. T. Rajan, Reg. No. 2103.

Diagnostic features : D. XI, 16; A. III, 8; P.18; V. I, 5; Ll. 59. Depth 3.2, head 2.55 in standard length; head pointed, the dorsal profile nearly straight; interorbital space almost flat; maxillary reaching to hind border of orbit; spinous dorsal membrane slightly incised; caudal fin rounded. Body

olive to reddish brown with large irregular whitish patches; two dark streaks across cheek and operculum; a dark streak at Upper edge of maxillary groove; median and ventral fins mottled.

Habitat : Found on muddy areas around reef.

Distribution : Indo-West Pacific, from Gulf of Oman, Lakshadweep, coasts of India, Andaman Is. to Philippines.

***Epinephelus fasciatus* (Forsskal, 1775)**

1775. *Perca fasciata* Forsskal, *Descript Animal*, p. 40.

1991. *Epinephelus fasciatus* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 146, pl. 12C. fig. 73.

Material examined : Chidiyatapu (South Andaman), 23.10.1989, 1 ex., 135 mm, Coll : P. T. Rajan, Reg. No. 1610; Port Blair (South Andaman), 30.7.1991, 1 ex., 174 mm, Coll : D. V. Rao & party, Reg. No. 1626; Hut Bay (Little Andaman), 23.10.1991, 4 exs., 145-196 mm, Coll : P. T. Rajan Reg. No. 1694 & 1872.

Diagnostic features : D. XI, 16; A. III, 8; P. 18-19; V. I, 5; Ll. 49-54. Depth 2.8-3.2, head 2.4-2.61 in standard length; very small scales on maxilla; mid-side of lower jaw with 3-4 rows of teeth; spinous dorsal membrane incised. Body yellowish red with 5 broad dark orange-red bars on body; dorsal part of head and nape dark reddish-brown; rim of orbit black; outer triangular part of interspinous dorsal fin black.

Habitat : Found on coral reefs and rocky bottom.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is. Sri Lanka to Australia, Japan and Solomon to Marquesas Islands.

***Epinephelus flavocaeruleus* (Lacepede, 1801)**

(Fig. 142)

1801. *Holocentrus flavocaeruleus* Lacepede, *Hist. Nat. Poiss.* 4 : 367.

1991. *Epinephelus flavocaeruleus* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 155, pl. 8C, fig. 76.

Material examined : Rutland (South Andaman), 18.10.1993, 1 ex., 267 mm, Coll : D. V. Rao & party, Reg. No. 2416.

Diagnostic features : D. XI, 16; A. III, 8; P. 18, V. I, 5; Ll. 66. Depth 2.45, head 2.52 in standard length; rear nostrils much larger than front ones; mid-side of lower jaw with two rows of teeth; membranes of spinous dorsal not incised; caudal fin slightly emarginate. Body deep blue, anterior part of head, caudal peduncle and all fins yellow; dorsal, anal and ventral fins blue basally; corners of caudal fin black.

Habitat : Found around shallow reef areas.

Distribution : Indian Ocean, from Gulf of Aden, east coast of Africa, Islands of Western Indian Ocean, Sri Lanka, Andaman Is. and Sumatra,

***Epinephelus fuscoguttatus* (Forsskal, 1775)**

(Fig. 143)

1775. *Perca summana fuscogutta* Forsskal, *Descript Animal.* p. 42.

1991. *Epinephelus fuscoguttatus* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 157, pl. 13D, fig. 77.

Material examined : Malay Is. (South Andaman), 4.12.1990, 1 ex., 283 mm, Coll : K. V. Raman & party, Reg. No. 1704.

Diagnostic features : D. XI, 15; A. III, 8; P. 19; V. I, 5; Ll. 56. Body oblong and laterally compressed, dorsal profile of head indented at interorbital region and distinctly convex from there to dorsal origin; interorbital space flat; maxillary extending beyond posterior border of eye; preopercle obtusely rounded and upper edge finely serrated; spinous dorsal incised; caudal fin rounded. Body light-yellowish brown with irregular brown blotches of variable size on head and body; blotches along back are dark; a black saddle-like spot on caudal peduncle; head body and fins with numerous close-set small brown spots.

Habitat : Found around coral reef areas.

Distribution : Wide spread in Indo-Pacific region.

***Epinephelus lanceolatus* (Bloch, 1790)**

1790. *Holocentrus lanceolatus* Bloch, *Nat. Ausland Fische.* 4. 94.

1993. *Epinephelus lanceolatus* : Rao *et al*, *Environment & Ecology.* 11 (4) : 882.

Material examined : Shoal Bay (South Andaman), 25.1.1993, 1 ex., 440 mm, Coll : P. T. Rajan, Reg. No. 2171.

Diagnostic features : D. XI, 15; A. III, 8; P. 19; V. I, 5; L1. 59. Depth 3.2, head 2.55 in standard length; small scales on maxilla and on snout; eyes small, 9.2 in head length; interorbital space flat; maxilla extending beyond rear edge of orbit. Colour yellowish brown with vaguely mottled; all fins with black spots and blotches.

Habitat : Found in large caves in reef areas.

Distribution : Wide spread in Indo-Pacific, from Red Sea to Hawaiian Islands.

***Epinephelus longispinis* (Kner, 1864)**

1864. *Serranus longispinis* Kner, *Reise. der Oster. Fregatte. den Fische.*, p. 403.

1991. *Epinephelus longispinis* : Randall & Heemstra, *Indo-Pacific Fishes.*, (20) : 182, pl. 16, fig. 90.

Material examined : South Reef Is.* (North Andaman), 23. 3. 1993, 1 ex., 210 mm, Coll : G. C. Rao & party, Reg. No. 2245.

Diagnostic features : D. XI, 16; A. III, 8; P. 18; V. I, 5; L1. 51. Depth 3.0, head 2.46 in standard length; two rows of teeth on mid side of lower jaw; interspinous membrane incised; caudal fin slightly rounded. Body light brown, with small scattered dark spots on head and anterior part of body and diagonally elongated, more crowded posteriorly and on caudal peduncle; dorsal, pectoral and caudal fins with scattered dark brown spots; margin of caudal fin with a row of large black spots.

Habitat : Found on coral reefs.

Distribution : Indian Ocean, from east coast of Africa, Islands of Western Indian Ocean, Sri Lanka and Andaman Is. to Indonesia.

***Epinephelus macrospilos* (Bleeker, 1855)**

1855. *Serranus macrospilos* Bleeker, *Nat. Tijds. Ned. Indie.*, 6 : 499.

1991. *Epinephelus macrospilos* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 186, pl. 26B, C, fig. 92-94.

Material examined : Shoal Bay (South Andaman), 19.10.1992, 1 ex., 326 mm, Coll : P. T. Rajan, Reg. No. 2076.

Diagnostic features : D. XI, 17; A. III, 8; P. 18; V. I, 5; L1. 51. Small scales on maxilla; dorsal profile of head with an angularity above anterior edge of orbit; interorbital space almost flat; lower jaw strongly projecting. Body pale brown with round to polygonal dark brown spots on head and body; edge of maxillary groove with dark streak; all fins yellowish with scattered large black spots except pectoral dusky with a few black spots basally; margin of fins narrowly whitish.

Habitat : Found in outer reef areas.

Distribution : Indo-Pacific, from east coast of Africa, Islands of Western Indian Ocean, Andaman & Nicobar Is. and Cocos-Keeling to Marquesas Islands.

***Epinephelus malabaricus* (Bloch & Sch., 1801)**

1801. *Holocentrus malabaricus* Bloch & Schneider, *Syst. Ichth.*, p. 319, pl. 63.

1991. *Epinephelus malabaricus* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 194, pl. 17B, fig. 99.

Material examined : Shoal Bay (South Andaman), 21.4.1993, 1 ex., 324 mm, Coll : P. T. Rajan, Reg. No. 2220.

Diagnostic features : D. XI, 15; A. III, 8; P. 19; V. I, 5; L1. 58. Body moderately elongate and not very compressed; eye relatively small, interorbital slightly convex; ventral fin not reaching anus; caudal fin rounded. Body light yellowish brown with five dark brown slightly oblique bands on body; head and body with numerous small well developed black spots; a dark streak present at upper edge of maxillary groove; fins with scattered black spots.

Habitat : Found on reef areas in shallow waters.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, coasts of India, Andaman Is. to Ryukyu Is., Australia to Tonga Island.

***Epinephelus merra* Bloch, 1793**

(Fig. 144)

1793. *Epinephelus merra* Bloch, *Nat. Ausland Fische*. 7 : 17, pl. 239.

1991. *Epinephelus merra* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 205, pl. 38A, fig. 106.

Material examined : Hutbay (Little Andaman), 27.10.1990, 1 ex., 223 mm, Coll : K. V. Raman & party, Reg. No. 2156; 28.10.1991, 1 ex., 153 mm, Coll : P. T. Rajan, Reg. No. 2074; Malay Is. (South Andaman) 4.12.1990, 1 ex., 216 mm, Coll : K. V. Raman & party, Reg. No. 1703; Shoal Bay (South Andaman), 19.10.1992, 2 exs., 126 & 170 mm, Coll : P. T. Rajan, Reg. No. 2101; Outram Is. (Ritchie's Archipelago), 1.3.1994, 2 exs., 118 & 175 mm, Coll : D. V. Rao & party, Reg. No. 2613; South Bay (Little Andaman), 23. 3.1995, 1 ex., 230 mm, Coll : D. V. Rao & party, Reg. No. 2917; Pillomilow (Nicobar Group), 31.3.1992, 3 exs., 200-250 mm, Coll : P. T. Rajan, Reg. No. 2193; Great Nicobar Is., 9.2.1994, 2 exs., 128 mm, Coll : D. V. Rao, Reg. No. 2579.

Diagnostic features : D. XI. 15-16; A. III, 8; P. 16-17; V. I, 5; L1. 51-53. Depth 3.0-3.25, head 2.4-2.55 in standard length; maxillary reaches past eye; flank scales ctenoid; caudal fin rounded. Body light brown with close-set round to hexagonal dark brown spots, the spots on head progressively smaller anteriorly; spots on ventral side of body more widely separated; all fins spotted.

Habitat : Found in shallow reef and rocky areas.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman & Nicobar Is. Sri Lanka to Japan and Australia to Tahiti Island.

*** *Epinephelus melanostigma* Schultz, 1953**

1953. *Epinephelus melanostigma* Schultz, in Schultz and Collaborators, *Bull. U. S. Nat. Mus.*, 202(1) : 331, 348, fig. 54.

1991. *Epinephelus melanostigma* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 202, pl. 17D, fig. 104.

Material examined : South Bay (Little Andaman), 23.3.1995, 2 exs., 115-117 mm, Coll : D. V. Rao & party, Reg. No. 2919.

Diagnostic features : D. IX, 15; A. III, 8; P. 18; V. I, 5; L1. 62-64. Depth 3.35, head 2.3 in standard length; caudal peduncle depth 3.3 in head length; maxilla with small scales; margin of sub and interopercle smooth; dorsal fin membrane incised; caudal fin rounded. Body with dark orangish brown close-set polygonal spots, the spots on head progressively small anteriorly; spots ventrally on head and belly isolated and rounded; a large black blotch on back between base of 8th dorsal spine and 1st ray extending into dorsal fin; all fins densely spotted; median and pectoral fins with narrow white margin.

Habitat : Found on coral reefs in shallow waters.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, Andaman Is. to Ryukyu Is. and Palau to Line Is.

***Epinephelus ongus* (Bloch, 1790)**

(Fig. 145)

1790. *Holocentrus ongus* Bloch, *Nat. Ausland. Fische*. 4 : 69, pl. 234.

1991. *Epinephelus ongus* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 219, pl. 29A, Fig. 114 & 115.

Material examined : Shoal Bay (South Andaman). 3.11.1992, 1 ex., 228 mm, Coll. P. T. Rajan, Reg. No. 2102; Mayabunder (North Andaman), 17.8.1991, 2 exs., 210 & 219 mm, Coll : D. V. Rao, Reg. No. 1705.

Diagnostic features : D. XI, 15; A. III, 8; P.17; V. I, 5; L1. 52. Depth 3.1, head 2.4 in standard length; upper margin of opercle strongly arched; serrae at corner of preopercle slightly enlarged; 3rd or 4th dorsal spines long; caudal fin rounded. Body brown with numerous small white spots on body may form into irregular cross or narrow stripes, especially posteriorly; head finely dotted with white dorsally, and behind eyes; upper edge of maxillary groove black; median fins greyish brown with white spots; soft dorsal, anal and posterior edge of caudal fin with narrow white margin and a black submarginal band; pectoral and ventral fins grey.

Habitat : Found in coral reef areas in shallow waters.

Distribution : Wide spread in Indo-Pacific region.

***Epinephelus quoyanus* (Valenciennes. 1830)**

1830. *Serranus quoyanus* Valenciennes, in Cuv. & Val., *Hist. Nat. Poiss*. 6 : 519.

1991. *Epinephelus quoyanus* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 240, pl. 20C, fig. 125 & 126.

Material examined : Great Nicobar Is. 6.8.1984, 1 ex., 206 mm, Coll : B. Mitra & party, Reg. No. 1336.

Diagnostic features : D. XI, 17; A. III, 8; V. I, 5; L1. 49. Depth 2.9, head 2.5 in standard length; scales on body ctenoid; maxilla almost naked; dorsal profile of head convex, snout short; interorbital space flat; serrae at corner of preopercle long; 3rd to 5th dorsal spines long; caudal fin rounded. Body whitish with numerous large hexagonal to roundish brown to black spots on head and body, spots on head progressively smaller anteriorly; thorax with two irregular oblique brown bands; a transverse pair of pale blotches on isthmus; dorsal and caudal fins with a large brown spots; anal and ventral fins with smaller and more scattered dark spots; pectoral fin base with large semi-circular dark brown spot, rest of fin with indistinct small dark spots.

Habitat : Found in reef areas.

Distribution : Wide spread in Indian Ocean and Western Pacific.

***Epinephelus spilotoceps* Schultz, 1953**

1953. *Epinephelus spilotoceps* Schlutz in Schlutz and Collaborators., *Bull. U. S. Nat. Mus.*, 202 : 332, 357, fig. 56, 57.

1991. *Epinephelus spilotoceps* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 259, pl. 20B, fig. 137.

Material examined : North Reef Is. (North Andaman), 11. 3. 1993, 1 ex., 204 mm, Coll : G. C. Rao & party, Reg. No. 2254.

Diagnostic features : D. XI, 15; A. III, 8; P. 18; V. I, 5; L1. 67. Depth 3.0, head 2.38 in standard length; a shallow distinct notch at posterior margin of preopercle; 4th dorsal spine usually longest; spinous dorsal fin membrane incised; caudal fin rounded. Body whitish with numerous dark brown spots on head, body and fins; spots dorsally on body polygonal and close-set, the pale interspaces forming a fine reticulum; spots ventrally on body more separated and roundish; a large dark brown blotch at base of last dorsal spines; two similar, small blotches at base of soft dorsal and another small blotch dorsally on caudal peduncle; tips of interspinous dorsal fin membranes yellowish-white with submarginal blackish spots.

Habitat : Found in reef areas.

Distribution : Wide spread in Indo-Pacific region.

***Epinephelus undulosus* (Quoy & Gaimard, 1824)**

(Fig. 146)

1824. *Bodianus undulosus* Quoy & Gaimard, *Voy. Urani. Zool*, p. 310.

1991. *Epinephelus undulosus* : Randall & Heemstra, 1991. *Indo-Pacific Fishes*, (20) : 248, pl. 25, fig. 152.

Material examined : Bambooflat (South Andaman), 26.11.1992, 1 ex., 226 mm, Coll : P. T. Rajan, Reg. No. 2150 ; Rutland (South Andaman), 18.10.1993, 1 ex., 125 mm, Coll : D. V. Rao & party, Reg. No. 2792.

Diagnostic features : D. XI, 17; A. III, 8; P. 18; V. I, 5; L1. 68. Depth 3.3, head 2.7 in standard length, eye 4.75 in head; two rows of teeth on mid-side of lower jaw; spinous dorsal membrane not incised; caudal fin truncate. Body brownish grey with yellowish-brown spots on head and slightly wavy longitudinal brown lines on body; edge of spinous dorsal fin narrowly black; all fins, except pectoral, dark distally.

Habitat : Found in deep coastal waters near reefs.

Distribution : Indo-West Pacific, from Gulf of Aden to coasts of India, Andaman Is. Sri Lanka to Philippines, Papua New Guinea and Solomon Islands.

Genus *Plectropomus* Oken, 1817*Key to species*

- 1a Ventral fin with blue spots, some spots on sides of body vertically elongate; relatively more spots on head; orbit narrowly rimmed in blue *P. pessuliferus*
- 1b Ventral fin without blue spots; some spots on sides of body horizontally elongate; relatively few spots on head; orbit without blue rim *P. maculatus*

Plectropomus maculatus (Bloch, 1790)

1790. *Bodianus maculatus* Bloch, *Nat. Ausland. Fische.*, 4 : 48.

1991. *Plectropomus maculatus* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 295, pl. 26D, fig. 159.

Material examined : Bambooflat (South Andaman), 14.9.1992, 1 ex., 251 mm, Coll : P. T. Rajan, Reg. No. 2019.

Diagnostic features : D. VIII, 11; A. III, 8; P. 16; V. I, 5; L1. 98. Depth 2.6, head 3.15 in standard length; snout naked; caudal fin emarginate. Body orange-red with dark edged blue spots on head, body and median fins, relatively few spots on head and cheek; lower part of thorax and abdomen without spots; single blue spot dorsally on pectoral fin base; no spots on ventral fin caudal fin margin whitish narrowly.

Habitat : Found around coral reefs.

Distribution : Indo-West Pacific, from Andaman Is. to Philippines and Australia, Queensland and Solomon Islands.

Plectropomus pessuliferus (Fowler, 1904.)

(Fig. 147)

1904. *Plectropomus pessuliferum* Fowler, *J Acad. Nat. Soc., Philadel.* Ser. 2, 12 : 520.

1992. *Plectropomus pessuliferus* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8(1) : 49, fig. 4.

Material examined : Wandoor (South Andaman), 19.8.1992, 2 exs., 190 & 410 mm, Coll : D. V. Rao & party, Reg. No. 1959.

Diagnostic features : D. VIII, 11; A. III, 8 ; P. 16; V. I. 5; L1. 98. Outer margin of anal fin straight to rounded; caudal fin emarginate. Body orange-red with numerous small dark edged blue spots on head, body and fins; the spots present basally on pectorals ; few spots on sides of body vertically elongate and some on head diagonally elongate; few spots on thorax and abdomen: caudal fin margin narrowly whitish.

Habitat : Foud around coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, Zanzibar to Andaman Is., Sri Lanka to Fiji.

Genus *Variola* Swainson, 1839.

Variola louti (Forsskal, 1775)

1775. *Perca louti* Forsskal, *Descript Animal.* p. 40.

1991. *Variola louti* : Randall & Heemstra, *Indo-Pacific Fishes*, (20) : 305, pl. 28E, fig. 168.

Material examined : Port Blair (South Andaman), 30.5.1993, 1 ex. 312 mm, Coll : D. V. Rao, Reg. No. 2348.

Diagnostic features : D. IX, 14; A, III, 8; P. 18; V. I, 5; L1. 72. Depth 3.0, head 2.65 in standard length; eye 5.5 in head; a pair of large canines on mid side of lower jaw; interspinous membrane of dorsal fin not incised; posterior part of dorsal and anal fins prolonged; caudal fin strongly lunate. Body orange-red with numerous small irregular spots and dashes of pale blue on head, body and median fins; pectoral and median fins with broad yellow margin.

Habitat : Found around coral reef areas.

Distribution : Indo-Pacific, from Red Sea; east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan, Australia, Solomon to Marquesas.

Family GRAMMISTIDAE

Body moderate sized; preopercular margin strongly serrate; mouth large, lower jaw slightly projecting; a small fleshy flap on tip of chin; teeth villiform; dorsal fin deeply notched; last ventral fin ray broadly joined to abdomen by a membrane; skin with a thick coat of viscid mucous.

Genus *Grammistes* Bloch & Schneider, 1801

Grammistes sexlineatus (Thunberg, 1792)

1792. *Perca sexlineata* Thunberg, *Vet. Akad. Nya Handlinger, Stockholm*, 13 : 142, pl. 5.

1986. *Grammistes sexlineatus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 538, pl. 45, fig. 167.3.

Material examined : Car Nicobar Is. 10.9.1988, 1 ex., 85 mm, Coll : H. S. Mehta & party, Reg. No. 1839; North Reef Is. (North Andaman), 11.3.1993, 1 ex., 50 mm, Coll : G. C. Rao & party, Reg. No. 2318; Rutland Is. (South Andaman), 17.10.1993, 1 ex., 51 mm, Coll : D. V. Rao & party, Reg. No. 2441; Outram Is. (Ritchie's Archipelago), 6.3.1994, 1 ex., 94 mm, Coll : D. V. Rao & party, Reg. No. 2793; Harmander Bay (Little Andaman), 21.3.1995, 1 ex., 116 mm, Coll : D. V. Rao & party; Reg. No. 2945; 23.3.1995, 1 ex. 62 mm, Coll : D. V. Rao & party, Reg. No 2944.

Diagnostic features : D. VII, 13; A, II, 9; P. 16-17; V. I, 5; L1. 65-68. Depth 2.3-2.6, head 2.28-2.6 in standard length; eye 4.6-4.8 in head; preopercle with 3-4 short broad based spines; very small fleshy flap on chin; scales on body embedded in skin. Body dark brown with 5-6 yellowish stripes; all fins pale.

Habitat : Found around reefs in shallow waters and under rocks.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman & Nicobar Is. to Marquesas.

Family PSEUDOCROMIDAE

Small, often brilliantly coloured fishes. Fairly elongate with moderate to small scales; posterior body scales ctenoid, rest cycloid; jaws and vomer with small, sharp conical teeth; single dorsal fin; lateral line in two parts; caudal fin rounded; ventral fin with 1 spine and 3-4 rays.

Genus *Pseudochromis* Ruppell, 1835

* *Pseudochromis cyanotaenia* Bleeker, 1857

1857. *Pseudochromis cyanotaenia* Bleeker, *Nat. Tijds. Ned. Indie*, 13 : 72.

1984. *Pseudochromis cyanotaenia* : Hayashi, in Masuda *et al*, *Fishes of Japanese Archipelago*, p. 138, pl. 126B.

Material examined : Outram Is. (Ritchie's Archipelago) 27.2.1994, 3 exs. 50-61 mm, Coll : D. V. Rao & party, Reg. No. 2946; South Reef Is. (North Andaman), 1 ex., 46 mm, Coll : G. C. Rao & party, Reg. No. 2890; Harmander Bay (Little Andaman), 18.3.1995, 2 exs., 27 & 48 mm, Coll : D. V. Rao & party, Reg. No. 2889; Muvadera (Little Andaman), 16.3.1995, 1 ex, 42 mm, Coll : D. V. Rao & party Reg. No. 2912.

Diagnostic features : D. III, 22; A. III, 13; P. 18; V. I, 4; L1. 28 + 11. Depth. 4.0-4.2, head 3.5-3.6 in standard length; cheek with three transverse rows of scales; snout acute; upper jaw with 3, lower jaw with 2 canines anteriorly; dorsal origin above pectorals. Body brownish above and lighter on lower half of head and sides; dorsal and anal fins purplish-brown; caudal fin red basally and yellow on outer portion; 8 small transverse metallic blue lines on sides of body.

Habitat : Found in tide-pools near coral reefs.

Distribution : Indo-West Pacific, from Andaman Is., Philippines to Ryukyu Is., and southwards Australia.

Family PLESIOPIDAE

Body oblong, slightly compressed; single dorsal, the membrane often deeply incised between spines; scales small to moderate, ctenoid; lateral line interrupted; dorsal and anal fins with basal scaly sheath; supramaxillary present; preopercle smooth; opercle without spines; bands of small canines on jaws, vomer and palatines; caudal fin rounded.

Genus *Plesiops* Cuvier, 1816

Key to Species

- 1a Dorsal fin with XI spines; no opercular spot; scales on body with blackish-blue spot*P. caeruleolineatus*
- 1b Dorsal fin with XII spines; large ocellated dark spot on opercle*P. corallicola*

Plesiops caeruleolineatus Ruppell, 1835

(Fig. 148)

1835. *Plesiops caeruleolineatus* Ruppell, *Neue. Wirvelt. Fische Rothen Meeres.*, p. 5, pl. 2; fig. 5.

1986. *Plesiops caeruleolineatus* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 253, fig. 172.2.

Material examined : South Bay (Little Andaman), 17.9.1990, 1 ex. 56. mm, Coll : K. V. Raman & party, Reg. No. 1853; Rutland Is. (South Andaman), 20.2.1993, 2 exs., 70 & 89 mm, Coll : D. V. Rao & party, Reg. No. 2044; Pilomilow (Nicobar Group), 31.3.1992, 1 ex., 36 mm, Coll : P. T. Rajan, Reg. No. 2043; Car Nicobar Is., 9.9.1989, 3 exs., 40-45 mm, Coll : H. S. Mehta, Reg. No. 1854.

Diagnostic features : D. XI, 7-8; A. III, 8; P. 21; V. I, 5 ; Ll. 18-20+8-11. Depth 3.0-3.3, head 2.6-2.74 in standard length; predorsal scales 6-7; caudal fin rounded. Body blackish-brown, sides of scales with blackish blue spot; two dark stripes behind eye; tips of dorsal spines orange-red; caudal fin with light orange-red submarginal band and a blue line in the dorsal and anal fins.

Habitat : Found under stones and coral rocks in tide pools.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman & Nicobar Is., Sri Lanka to Japan and Australia to Samoa Islands.

Plesiops corallicola Bleeker, 1853

(Fig. 149)

1853. *Plesiops corallicola* Bleeker, *Nat. Tijd. Ned. Indie.*, 4 : 116.

1984. *Plesiops corallicola* : Hayashi, in Masuda *et al*, *Fishes of Japanese Archipelago*, p. 141, pl. 126 M.

Material examined : South Bay (Little Andaman), 15.9.1990, 3 exs., 55-6- mm, Coll : K. V. Raman & party, Reg. No. 1571; Pilomilow Is. (Nicobar Group), 31.3.1992, 1 ex., 105 mm, Coll : P. T. Rajan, Reg. No. 2042; Port Blair (South Andaman), 31.1.1993, 2 exs., 81 & 120 mm, Coll : D. V. Rao & party, Reg. No. 2752; Outram Is. (Ritchie's Archipelago), 2.3.1994, 4 exs., 50-93 mm, Coll : D. V. Rao & party, Reg. No. 2593; Narcondam Is. (North Andaman), 15.3.1994, 2 exs., 121 & 151 mm, Coll : D. V. Rao, Reg. No. 2569; Great Nicobar Is. 14.2.1994, 4 exs. 78-155 mm, Coll : D. V. Rao, Reg. No. 2507.

Diagnostic features : D. XII, 7; A. III, 8; P. 20; V. I. 4; Ll. 17-18+13-14. Depth 3.38-4.5, head 3.4-3.6 in standard length, eye 3.4-3.56 in head; predorsal scales 7; caudal fin rounded. Body dark bluish black with lighter cross large bars on sides; body and fins with small whitish spots; large ocellated dark spot on gill cover.

Habitat : Found under coral rubble and stones in shallow water.

Distribution : Indo-West Pacific, from Madagascar to coasts of India, Andaman & Nicobar Is, to Japan and Australia to Fiji.

Family TERAPONIDAE

Body oblong, slightly compressed; mouth moderate, jaws equal; operculum with 2 spines, the lower spine longer and stronger; preoperculum serrate; jaws with villiform teeth in bands; no canines; vomer and palatines edentate; dorsal fin continuous, deeply notched in front of soft rayed part; scales ctenoid; lateral line complete, continued on caudal fin; dorsal and anal fins with basal scaly sheath; cheek and opercle scaly; caudal fin truncate to slightly forked; body with distinct longitudinal stripes.

Genus *Terapon* Cuvier, 1816

Key to Species

- 1a Lateral line with 46-56 scales; body with four horizontal stripes *T. theraps*
- 1b Lateral line with 70 or more scales; body with 3-4 downwardly curved stripes *T. jarbua*

Terapon jarbua (Forsskal, 1775)

(Fig. 150)

1775. *Sciaena jarbua* Forsskal, *Descript. Animal*, p. 50.

1986. *Terapon jarbua* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 544, pl. 47.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 195 mm, Coll : G. C. Rao & party, Reg. No. 1818; Mayabunder (North Andaman), 9.1.1992, 1 ex., 178 mm, Coll : D. V. Rao, Reg. No. 1819; Hut Bay (Little Andaman), 9.9.1990, 1 ex., 130 mm, Coll : K. V. Raman & party Reg. No. 2085.

Diagnostic features : D. XII, 9-10; A. III, 8-10; P. 13-14; V. I. 5; Ll. 72-83. Depth 2.8-3.1, head 2.6-3.4 in standard length; jaws with strong conical teeth in outer row, 3-5 large spines at angle of preoperculum; dorsal fin notched. Body silvery grey with 3-4 curved dark brown stripes; spinous dorsal fin with black blotch between 3rd and 6th spine; anterior and posterior tips of soft dorsal black; caudal fin with three horizontal stripes, the tips dark.

Habitat : Found in creeks and shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

***Terapon theraps* (Cuvier, 1829)**

1829. *Terapon theraps* Cuvier, *Hist. Nat. Poiss.* 3 : 129, pl. 53.

1986. *Terapon theraps* : Heemstra in Smith & Heemstra, *Smith's Sea Fishes*, p. 544, fig. 173.3.

Material examined : Rangat (Middle Andaman), 19.8.1991, 1 ex., 175 mm, Coll : K. Chandra & party, Reg. No. 1771.

Diagnostic features : D. XII, 11; A. III, 8; P. 14; V. I, 5; L1. 51. Depth 2.5, head 2.9 in standard length; serrae at angle of preopercle not much enlarged. Body dusky above, silvery below with four horizontal dark stripes; anterior part of spinous dorsal dark; anal fin with black blotch; caudal fin with three horizontal stripes, tip of upper lobe black.

Habitat : Found in creeks and shallow coastal waters.

Distribution : Widely distributed in Indo-Pacific region.

Family PRIACANTHIDAE

Body somewhat compressed; eyes very large; upper jaw slightly protrusile; one row of small conical teeth on jaws, no canines; minute teeth on vomer and palatines; scales ctenoid; head, lower jaw and maxilla scaled; lateral line single; dorsal fin single and continuous; preopercular spine present; caudal fin truncate or convex.

Genus *Priacanthus* Ken, 1817

***Priacanthus hamrur* (Forsskal, 1775)**

1775. *Sciaena hamrur* Forsskal, *Descript Animal*, p. 45.

1986. *Priacanthus hamrur* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 545, pl. 44, fig. 173.3.

Material examined : Mayabunder (North Andaman), 9.1.1992, 2 exs, 235 & 245 mm, Coll : D. V. Rao, Reg. No. 1844.

Diagnostic features : D. X, 14; A. III, 15; P. 18; V. I, 5; L1. 76. Depth 2.7 - 2.85, head 2.9 3.0 in standard length; eye 2.5 - 2.8 in head; mouth oblique and protractile; preorbital serrated; preopercle scaled and its spine distinct; caudal fin emarginate; pectoral fin shorter than ventral fin. Body copper-red, whitish below; median and ventral fins dusky red; black spot at base of first three ventral rays.

Habitat : Found around reef slopes in deep waters.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan, Australia to Hawaiian Islands.

Family APOGONIDAE

Small fishes. Body oblong and compressed; two well separated dorsal fins with 6-8 spines; scales present; branchiostegal rays 7; predorsal scales present; teeth on jaws, vomer and palatines; operacular bones smooth or serrated; one opercular spine present; caudal fin emarginate or rounded.

Key to Genera

- 1a First dorsal spines VI; anal II, 8-18 2
- 1b First dorsal spines VI or VII; anal II, 8-11 5
- 2a Longest procurrent caudal rays spiny; anal II, 9; palatine teeth present; preopercle edge serrated ***Sphaeramia***
- 2b Longest procurrent caudal rays segmented 3
- 3a Canine teeth and supra-maxilla absent 4
- 3b Canine teeth and supra-maxilla present ***Cheilodipterus***
- 4a Anal with II, 12-18 ***Archamia***
- 4b Anal with II, 8-9 ***Apogon***
- 5a Lateral line complete; preopercle edge serrate or smooth 6
- 5b Lateral line incomplete; preopercle edge smooth ***Fowleria***
- 6a Preopercle edge smooth; palatine teeth absent; supra-maxilla present; caudal fin rounded ***Apogonichthys***
- 6b Preopercle edge serrated; palatine teeth present; supra-maxilla absent caudal fin emarginate ***Apogon***

Genus ***Apogon*** Lacepede, 1802*Key to Species*

- 1a Dorsal fin spines VI 2
- 1b Dorsal fin spines VII 4
- 2a Preopercular ridge, preorbital and orbital rim serrated; body with dark transverse bands ***A. trimaculatus***
- 2b Preopercle ridge and preorbital smooth; no bands on body 3
- 3a Body brownish with large spot on caudal peduncle ***A. hyalosoma***
- 3b Body uniform reddish-brown; no spot on caudal peduncle ***A. coccineus***

- 4a Preopercle ridge serrated ; sub-orbital with spines ; dark stripe from snout to caudal*A. fraenatus*
- 4b Preopercular ridge and suborbital smooth 5
- 5a Two or more horizontal stripes along side of body; caudal spot present or not..... 6
- 5b No stripes along side of body; caudal spot or band present..... 9
- 6a Body pale with 6 orange-yellow stripes; no caudal spot*A. cyanosoma*
- 6b Stripes dark brown; caudal spot present or not 7
- 7a Two or 3 dark stripes along upper side of body, lower stripe extends to tip of mid caudal rays; no caudal spot *A. quadrifasciatus*
- 7b Five to six dark stripes on side of body 8
- 8a Five dark stripes on side of body, the 3rd stripe incomplete; mid-lateral stripe ending in a distinct black spot *A. cookii*
- 8b Six dark stripes on side of body; all stripes complete; no black spot on caudal
.....*A. endekataenia*
- 9a Narrow diagonal black stripe on cheek; dark spot on caudal base not completely encircling peduncle *A. guamensis*
- 9b No stripe on cheek; wide dark band encircling peduncle at caudal base
.....*A. aureus*

Apogon aureus (Lacepede, 1802)

(Fig. 151)

1802. *Centropomus aureus* Lacepede, *Hist. Nat. Poiss.*, 4 : 253, 273.

1991. *Apogon aureus* : Kamla Devi & Rajan, *J. Andaman Sci. Assoc.*, 7 (2) : 97.

Material examined : Chidiyatapu (South Andaman), 27.8.1987, 2 exs., 110-111 mm, Coll : Kamla Devi & party, Reg. No. 1545.

Diagnostic features : D. VII + I, 9; A. II, 8; P. 14; V. I, 5 Ll. 29; Ltr. 2 + 1 + 5. Depth 2.2, head 2.5 in standard length, eye 2.5 in head; dorsal and ventral profiles arched; mouth oblique; teeth in 2-3 narrow bands on jaws, two rows on vomer and palatines. Head dusky and body light yellow; a wide dark band encircling caudal peduncle; a dark stripe from snout to lower part of eye and another from snout over maxillary; a more or less distinct dark longitudinal stripe from snout to hind border of eye and operculum.

Habitat : Found around coral reef areas.

Distribution : Wide spread in Indo-West Pacific region from Red Sea to New Guinea.

*** *Apogon coccineus* Ruppell, 1838**

(Fig. 152)

1838. *Apogon coccineus* Ruppell, *Neue wirbelt. Fische. Rothen Meeres.*, p. 88, pl. 22, fig. 5.

1986. *Apogon coccineus* : Gon in Smith & Heemstra, *Smith's Sea Fishes* p. 549, pl. 48.

Material examined : Rutland Is. (South Andaman), 17.10.1993, 3 exs., 21-44 mm, Coll : D. V. Rao & party, Reg. No. 2423.

Diagnostic features : D. VI + I, 9; A. II, 8; P. 13; V. I, 5; Ll. 26. Depth 3.0, head 2.27 in standard length, eye 3.0 in head; interorbital width narrow, 2.0 in eye; mouth sub-terminal; ventral edge of preopercle poorly ossified; predorsal scales 6; caudal peduncle narrow and longer; caudal fin forked. Body transparent red.

Habitat : Found in crevices under coral rubble and reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Andaman Is. to Japan and Australia.

****Apogon cookii* Macleay, 1881**

(Fig. 153)

1881. *Apogon cookii* Macleay, *Proc. Linn. Soc. NSW.*, 5 : 344.

1986. *Apogon cookii* : Gon in Smith & Heemstra, *Smith's Sea Fishes*, p. 549, pl. 48, 51.

Material examined : North Reef Is. (North Andaman), 11.3.1993, 2 exs., 66 & 68 mm, Coll : G. C. Rao & party, Reg. No. 2240; Chidiyatapu (South Andaman), 2.8.1993, 2 exs., 64 & 70 mm, Coll : D. V. Rao, Reg. No. 2727.

Diagnostic features : D. VII + I, 9; A. II, 8; P. 15; V. I, 5; Ll. 27-28. Depth 2.6-2.7, head 2.5-2.6 in standard length, eye 2.4-2.9 in head; preorbital ridge smooth; sub-orbital without spines, Body whitish with 5-6 dark brown bands, the 3rd stripe originating at upper rear corner of eye is incomplete and the 4th mid-lateral stripe ending in a distinct black spot at caudal base; a black basal stripe on 2nd dorsal.

Habitat : Found in shallow reef areas.

Distribution : Indo-West Pacific, from east coast of Africa, Islands of Western Indian Ocean, Andaman Is. to Japan and Australia.

***Apogon cyanosoma* Bleeker, 1853**

1853. *Apogon cyanosoma* Bleeker, *Nat. Tijd. Ned. Indie.*, 5 : 71.

1986. *Apogon cyanosoma* : Gon, in Smith & Heemstra, *Smith's Sea Fishes*, p. 549, pl. 48.

Material examined : Rutland (South Andaman), 17.10.1993, 1 ex., 32 mm, Coll : D, V Rao & party, Reg. No. 2422.

Diagnostic features : D. VII + I, 9; A. II, 8; P. 14 ; V. I, 5; Ll. 27. Depth 2.87, head 2.7 in standard length, eye 2.7 in head; maxillary reaching below middle of eye; small teeth on both Jaws; preorbital, orbital and preopercular ridge smooth; predorsal scales 3. Body silvery-white with 6 orange yellow stripes, the 3rd post ocular stripe reaching under origin of 2nd dorsal; all fins hyaline; snout dusky.

Habitat : Found around coral reefs and rocky areas.

Distribution : Indo-West Pacific, from Red Sea. east coast of Africa, Andaman Is, East Indies and Japan, and Australia to Marshall Island.

Apogon endekataenia Bleeker, 1852

1852. *Apogon endekataenia* Bleeker, *Nat. Tijds. Indie.*, 2 : 449.

1929. *Apogon endekataenia* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 5 : 306.

1980. *Ostorhynchus endekataenia* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 262, fig. 221.

Material examined : Corbyn's Cove (South Andaman), 19.11.1992, 1 ex., 70 mm, Coll : D. V. Rao & party, Reg. No. 2111.

Diagnostic features : D. VII + I, 9; A. II 8; P. 14; V. I, 5; Ll. 25; Ltr. 2 + 1 + 6. Depth 2.7, head 2.5 in standard length, eye 3.0 in head, 0.7 in snout; maxilla reaching to below hind border of pupil; hind margin of preopercle serrated; ventral slightly shorter than pectoral. Body brownish above and yellowish below with 6 dark brown longitudinal stripes; 1st dorsal and ventral dusky; 2nd dorsal and anal fins pale with dark basal stripe; base of pectoral brownish.

Habitat : Found under coral stones in shallow waters.

Distribution : Wide spread in Indo-West Pacific region.

Apogon fraenatus Valenciennes, 1832

(Fig. 154)

1832. *Apogon fraenatus* Valenciennes, *Nouv. Ann. Mus. Hist. Nat. , Paris.*, 1 : 57, pl. 4, fig. 4.

1986. *Apogon fraenatus* : Gon, in Smith & Heemstra, *Smith's Sea Fishes*, p. 550, pl. 48.

Material examined : Chidiyatapu (South Andaman), 31.7.1992, 1 ex., 110 mm; Coll : D. V. Rao & party, Reg. No. 2354; Bambooflat (South Andaman), 15.12.1992, 2 exs. 95 mm, Coll : P. T. Rajan, Reg. No. 2130.

Diagnostic features : D. VII + I , 9; A. II, 8; P. 14; V. I, 5; Ll. 26-27. Depth 3.0-3.1, head 2.55-2.65 in standard length, eye 3.2-3.3 in head; preopercle and sub-orbital serrated; predorsal scales 4. Body pale brown with a dark black stripe through eye and ends with black spot at the centre of caudal fin base; upper and lower margin of caudal fin dusky; anterior spinous dorsal membrane dark.

Habitat : Found under stones and crevices of reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Lakshadweep, Andaman Is. to Ryukyu Is. and Australia to Line Islands.

***Apogon guamensis* Valenciennes, 1832**

(Fig. 155)

1832. *Apogon guamensis* Valenciennes, *Novun. Mus. Hist. Nat., Paris*, 1 : 54.

1986. *Apogon guamensis* : Gon, in Smith & Heemstra *Smith's Sea Fishes*, p. 550, fig. 175.11.

1992. *Ostorhynchus nubilus* : Rao *et al.*, *J Andaman Sci. Assoc.*, 8(1) : 50, fig. 6.

Material examined : Car Nicobar Is. 10.9.1988, 9 exs., 62-71 mm, Coll : H. S. Mehta & party, Reg. No. 1984; Rangat (Middle Andaman), 19.8.1991, 2 exs., 77 mm, Coll : K. Chandra & party, Reg. No. 2328; Chidiyatapu (South Andaman), 31.7.1992, 1 ex., 55 mm, Coll : D. V. Rao, Reg. No. 1985.

Diagnostic features : D. VII + I, 9; A. II, 8; P. 13; V. I, 5; L1. 24-26. Depth 2.4-2.5, head 2.4-2.65 in standard length, eye 2.2-2.8 in head. Sub-orbital without spines; preopercular ridge smooth. Body coppery-white, lighter below with dark saddle on upper half of caudal peduncle rays; a narrow oblique dark stripe from eye to angle of preopercle; light vertical bars on body laterally; anterior half of spinous dorsal fin blackish.

Habitat : Found around coral reefs in tide-pools and coral rubble.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Lakshadweep, Andaman Is. to Ryukyu Is. and Australia to Samoa Island.

***Apogon hyalosoma* Bleeker, 1852**

1852. *Apogon hyalosoma* Bleeker, *Nat. Tijds. Ned. Indie.*, 3 : 63.

1929. *Apogon hyalosoma* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 5 : 341.

Material examined : Chidiyatapu (South Andaman), 31.10.1989, 1 ex., 105 mm, Coll : H. S. Mehta & party, Reg. No. 1439; Havelock Is. (Ritchie's Archipelago), 19.11.1991, 2 exs., 135 & 145 mm, Coll : D. V. Rao, Reg. No. 1776; Bambooflat (South Andaman), 30.11.1992, 1 ex., 116 mm, Coll : P. T. Rajan, Reg. No. 2133.

Diagnostic features : D. VI + I, 9; A. II, 8; P. 14; V. I, 5; L1. 26-27; Ltr. 2½ + 1 + 7. Depth 2.4 – 2.52, head 3.38–3.42 in standard length, eye 3.6-4.1 in snout; dorsal profile arched with a slight concavity at nape; mouth oblique; hind and lower border of preoperculum feebly serrated; preopercular ridge and preorbital rim smooth; teeth small in villiform bands. Body yellowish above, lighter below; a large round black blotch near base of caudal; a black spot at the end of base of anal and 2nd dorsal; a dusky spot on operculum; fin membrane between 2nd and 3rd dorsal spines blackish; 2nd dorsal, anal, and caudal fins slightly dusky.

Habitat : Found around rocky and coral reef areas.

Distribution : Indo-West Pacific, from Zanzibar to Andaman Is. and Indonesia to Japan.

***Apogon quadrifasciatus* Cuvier, 1828**

1828. *Apogon quadrifasciatus* Cuvier, in Cuv. & Val., *Hist. Nat. Poiss.*, 2 : 153.

1992. *Ostorhynchus quadrifasciatus* : Rao et al, *J Andaman Sci Assoc.*, 8(1) : 50.

1986. *Apogon quadrifasciatus* : Gon, in Smith & Heemstra, *Smith's Sea Fishes*, p. 552, pl. 49.

Material examined : Rangat (Middle Andaman), 1 ex., 75 mm, 19.8.1991, Coll : K. Chandra & party, Reg. No. 1982; Havelock Is. (Ritchie's Archipelago), 19.11.1991, 1 ex., 80 mm, Coll : D. V Rao, Reg. No. 1983.

Diagnostic features : D. VII. + I, 9; A. II, 8; P. 13; V. I, 5; Ll. 26; Ltr. $1\frac{1}{2} + 1 + 7$. Depth 2.8, head 2.7-2.8 in standard length, eye 2.9 in head, 0.8 in snout; upper profile of body somewhat arched; mouth oblique; maxillary reaching below posterior half of eye; orbital rim very rough; preorbital and preopercular ridge smooth; pectoral shorter than head without snout; caudal truncate, lobes slightly rounded. Body yellowish brown, lighter below with silvery reflections; two longitudinal dark stripes on lateral side of body, the first from snout along back towards upper edge of caudal base, the second band through eye, over opercle to the end of median caudal rays; anterior part of first dorsal dusky; soft dorsal and anal with sub-basal dark brownish band; upper and lower rays of caudal dusky.

Habitat : Found in sandy areas near reefs.

Distribution : Indo-West Pacific, from Red Sea. east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to China and Australia to Fiji Island.

***Apogon trimaculatus* Cuvier, 1828**

(Fig. 157)

1828. *Apogon trimaculatus* Cuvier, in Cuv. & Val., *Hist. Nat. Poiss.*, 2 : 156.

1992. *Apogon trimaculatus* : Rao et al, *J Andaman Sci. Assoc.*, 8(1) : 49.

Material examined : Bambooflat (South Andaman), 6.7.1992, 2 exs., 150 mm, Coll : P. T. Rajan, Reg. No. 1935; 30.11.1992, 1 ex., 140 mm, Coll : P. T. Rajan, Reg. No. 2131.

Diagnostic features : D. VI + I, 9; A. II, 8; V. I, 5; Ll. 26-27; Ltr. 2 + 1 + 7. Depth 2.6 in standard length, eye 3.4 in head, dorsal profile sloping gently from dorsal to snout; mouth oblique; maxillary reaching to below middle of eye; preopercular ridge denticulated; preorbital smooth; caudal feebly incised, the lobe rounded. Body reddish brown, lighter below; a dark brown transverse band from origin of first dorsal to half way ventrals, a second one from end of 2nd dorsal to lateral line, the 3rd one on caudal peduncle; a dark spot at the end of base of anal; a dark streak from hind border of eye to angle of preoperculum; dorsal and caudal fins dusky.

Habitat : Found in reef areas under stones.

Distribution : Indo-West Pacific, from Andaman Is. to Philippines, Ryukyu Is., New Guinea to Samoa Islands.

Genus *Apogonichthys* Bleeker, 1854

Apogonichthys ocellatus (Weber, 1913)

1913. *Apogon ocellatus* Weber, *Siboga Expd. Fishe.* p. 231.

1992. *Apogonichthys ocellatus* : Rao *et al*, J Andaman Sci. Assoc., 8 (1) : 50, fig. 5.

Material examined : Chidiyatapu (South Andaman), 31.8.1992, 1 ex., 41 mm, Coll : D. V. Rao, Reg. No. 1986.

Diagnostic features : D. VII + I, 9; A. II, 8; P. 14; V. I, 5; Ll. 24; Ltr. $1\frac{1}{2}$ + 1 + 6. Depth 2.9, head 2.5 in standard length, eye 3.0 in head. Dorsal profile convex, sloping in an almost straight line from dorsal to snout; head smooth; orbital rim rough; anterior nostril with long flap; all fins rounded. Body brownish, the cheek bar from eye to lower margin of preopercle edge black, another band from eye to superior angle of operculum; a black ocellus equal to eye diameter on the first dorsal between 4th and 7th spines; all fins brown; pectoral fin with dark spots.

Habitat : Found under rocks near reef areas.

Distribution : Indo-West Pacific, from east coast of Africa, Lakshadweep, Andaman Is. to Ryukyu Is. and Marshall to Tuamotu Island.

Genus *Archamia* Gill, 1863

Archamia fucata (Cantor, 1850)

1850. *Apogon fucatus* Cantor, *J. Asiatic Soc., Bengal*, 18 (2) : 986.

1986. *Archamia fucata* : Gon, in Smith & Heemstra, *Smith's Sea Fishes*, p. 554, pl. 49.

Material examined : Shoal Bay (South Andaman), 22.6.1989, 1 ex., 66 mm; Coll : P. T. Rajan, Reg. No. 1904.

Diagnostic features : D. VI + I, 8; A. II, 8; P. 14; V. I, 5; Ll. 28. Depth 2.8, head 2.6 in standard length, eye 3.1 in head; canine teeth and supramaxilla absent; few teeth on vomer; preopercle ridge smooth, edge serrated. Body light reddish yellow with narrow faint orange lines on sides; dark spots on cheek, opercle and sides of body; a diffuse, large black spot at base of caudal fin.

Habitat : Found on coral rubble and under stones.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is, Sri Lanka to Ryukyu Is. and Australia to Samoa Islands.

Genus *Cheilodipterus* Lacepede, 1802

Key to Species

- 1a One scale row between lateral line and 1st dorsal; 5-6 black stripes on side of body; caudal spot small, encircled with yellow *C. quinquelineatus*
- 1b Two scale rows between lateral line and 1st dorsal; 8-9 narrow black stripes on side of body; diffuse band around caudal peduncle *C. lineatus*

Cheilodipterus lineatus Lacepede, 1802

(Fig. 158)

1802. *Cheilodipterus lineatus* Lacepede, *Hist. Nat. Poiss.*, 3 : 539.

1986. *Cheilodipterus lineatus* : Gon in Smith & Heemstra, *Smith's Sea Fishes*, p. 555, pl. 50.

Material examined : Nancowry Is. (Nicobar Group), 13.11.1989, 1 ex., 153 mm; Coll H. S. Mehta & party, Reg. No. 1567; Bambooflat (South Andaman), 2.8.1991, 1 ex., 110 mm; Coll : P. T. Rajan, Reg. No. 1906; 30.11.1992, 3 exs., 190 mm, Coll : P. T. Rajan, Reg. No. 2132; Rutland Is. (South Andaman), 18.10.1993, 1 ex., 165 mm, Coll : D. V. Rao & Party, Reg. No. 2421.

Diagnostic features : D. VI + I, 9; A. II, 8; P. 13; V. I. 5; Ll. 28. Depth 3.1-3.6, head 2.45-2.58 in standard length, eye 3.15-3.31 in head, body slender and low; large canine teeth present; preopercle serrated; predorsal scales 5. Body whitish with 8-9 dark reddish brown stripes broader than pale interspaces; caudal base dark, the upper and lower margin of caudal fin dark-brown; upper part of 1st dorsal fin black.

Habitat : Found around coral and rocky reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Andaman Is., and Indonesia to Japan, Australia to Samoa.

Cheilodipterus quinquelineatus Cuvier, 1828

1828. *Cheilodipterus quinquelineatus* Cuvier, *Hist. Nat. Poiss.*, 2 : 167.

1986. *Cheilodipterus quinquelineatus* : Gon, in Smith & Heemstra, *Smith's Sea Fishes*, p. 556, pl. 50.

Material examined : South Bay (Little Andaman), 15.9.1990, 28 exs., 35-82 mm; Coll : K. V. Raman & party, Reg. No. 1643; Panighat (South Andaman), 24.4.1991, 1 ex., 91 mm, Coll : Kamla Devi, Reg. No. 1869; Chidiyatapu (South Andaman), 31.7.1992, 1 ex., 55 mm, Coll : D. V. Rao, Reg. No. 1968.

Diagnostic features : D. VI + I, 9; A. II, 8; P. 12; V. I, 5; Ll. 26-27. Depth 3.4-3.56, head 2.5-2.55 in standard length, eye 3.0-3.2 in head. Sharp canine teeth on both jaws; predorsal scales 6-7. Body white with 5 black longitudinal stripes narrower than interspaces on body, 1st dorsal spine black; base of caudal fin light yellow with a black spot at the base of middle rays; upper and lower margins of caudal fin dusky.

Habitat : Found around rocky and coral reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Society Islands.

Genus *Fowleria* Jordan & Everman, 1903

**Fowleria punctulata* (Ruppell, 1838)

1838. *Apogon punctulatus* Ruppell, *Neue. Wirbelth. Fishche.*, p. 88.

1990. *Fowleria punctulata* : Allen, in Randall *et al*, *Fishes of Great Barrier Reef and Coral Sea.*, p. 152.

Material examined : Chidiyatapu (South Andaman), 31.7.1992, 1 ex., 43 mm, Coll : D. V. Rao & party, Reg. No. 2729.

Diagnostic features : D. VII + I, 9; A. II, 8; P. 14; V. I, 5; L1. 12. Depth 3.0, head 2.5 in standard length; eye 3.25 in head ; snout projecting; anterior nostrils with long tube; supra maxilla present; preopercle edge smooth; palatine edentate; predorsal scales 5; caudal fin rounded. Body light brown with small black spots in longitudinal row on sides; an ocellated black spot on opercle.

Habitat : Found near coral rubble bottom.

Distribution : Indo-West Pacific, from Red Sea, Andaman Is., Indonesia to Japan, and Australia.

Genus *Sphaeramia* Fowler & Bean, 1930

Sphaeramia orbicularis (Kuhl & Van Hasselt, 1828)

(Fig. 156)

1828. *Apogon orbicularis* Kuhl & Van Hasselt, in Cuv. & Val., *Hist. Nat. Poiss.*, 2 : 155.

1986. *Sphaeramia orbicularis* : Gon, in Smith & Heemstra, *Smith's Sea Fishes*, p. 557, pl.. 50.

Material examined : Alexandra Is. (South Andaman), 28.11.1990, 1 ex., 50 mm, Coll : K. V. Raman & party, Reg. No. 1574; Havelock Is. (Ritchie's Archipelago), 1 ex., 48 mm, Coll : D. V. Rao. Reg. No. 1873.

Diagnostic features : D. VI + I, 9; A. II, 9; P. 12; V. I, 5; L1.26; Ltr. 2 + 1 + 7. Depth 1.9-2.0, head 2.4-2.65 in standard length, eye 2.6-2.8 in head; body much elevated; dorsal profile raising steeply from snout to dorsal; mouth oblique; maxillary reaching to below middle of eye; preoperculum serrated; origin of dorsal slightly behind ventrals; lateral rays of caudal fin spine-like. Body pale; an oblique black band runs from origin of 1st dorsal ray of anus; caudal base with small indistinct black spots arranged in a semicircle; longitudinal scale rows of head and body marked by black spots.

Habitat : Found in reefs areas in shallow waters.

Distribution : Wide spread in Indo-West Pacific region.

Family SILLAGINIDAE

Body elongate, cylindrical; mouth small and terminal; fine teeth in bands on jaws and vomer, palatines edentate; operculum with a small spine; maxilla covered by preorbital; scales ctenoid, rather deciduous; two dorsal fins, separated by a deep notch, caudal fin emarginate.

Genus *Sillago*, Cuvier, 1817

Sillago sihama (Forsskal, 1775)

(Fig. 159)

1775. *Atherina sihama* Forsskal, *Descript. Animal.*, p. 70.

1986. *Sillago sihama* : McKay, in Smith & Heemstra, *Smith's Sea Fishes*, p. 615, fig 198.3.

Material examined : Diglipur (North Andaman), 26.2.1990, 1 ex., 162 mm, Coll : H. S. Mehta & party, Reg. No. 1466; Hut Bay (Little Andaman), 28.11.1990, 6 exs., 121-182 mm, Coll : P. T. Rajan, Reg. No. 2157; Smith Is. (North Andaman). 14.1.1990, 4 exs., 142-156 mm, Coll : K. V. Raman & party, Reg. No. 1940; Corbyn's Cove (South Andaman), 8.11.1992, 1 ex., 94 mm, Coll : D. V. Rao. Reg. No. 2119.

Diagnostic features : D. XI + I, 22-23; A. II, 21-23; P. 16-17; V. I. 5; L1. 66-71. Body elongate, snout pointed; mouth small and terminal. Body light brown above, lower flanks and belly whitish or silvery; dorsal and caudal fins dusky, other fins pale.

Habitat : Found in creeks and sandy bottom of inshore waters.

Distribution : Wide spread in Indo-Pacific region.

Family LACTARIIDAE

Body oblong, slightly compressed and deeper than head length; upper and lower profiles of body similar; mouth large and oblique, lower jaw prominent; pair of sharp, small canines in each jaw; two dorsal fins, separate; caudal fin forked; scales cycloid, easily shed.

Genus *Lactarius* Valenciennes, 1833

Lactarius lactarius (Schneider, 1801)

1801. *Scomber lactarius* Schneider, *Syst. Ichth. Bloch.*, p. 31.

1984. *Lactarius lactarius* : Talwar & Kacker, *Commercial Sea Fishes of India*, P. 427, fig. 165.

Material examined : Diglipur (North Andaman), 2 exs., 220 mm, Coll : G. C. Rao & party, Reg. No. 1984.

Diagnostic features : D. VII + I, 21-22; A. III, 28. Head large about 2.55 in standard length; mouth oblique, the lower jaw prominent; two small canine teeth in front of each jaw; ventral fins below the level of pectoral fin base; soft portions of dorsal and anal fins covered with scales. Body

silvery-grey above and silvery-white below; a dusky spot on upper part of operculum; fins pale yellow; margin of dorsal and caudal fins dusky.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Family RACHYCENTRIDAE

Body elongate and sub-cylindrical, head broad and depressed; mouth large with bands of fine teeth on jaws, on palate and tongue; scales minute, embedded in thick skin; two dorsal fins, the first with free spines and each depressible into a groove; caudal fin lunate.

Genus *Rachycentron* Kaup, 1826

Rachycentron canadus (Linnaeus, 1766)

1766. *Gasterosteus canadus* Linnaeus. *Syst. Nat.* ed. 12, 1 : 491.

1986. *Rachycentron canadus* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 662, Fig. 212.1.

Material examined : Havelock Is. (Ritchie's Archipelago), 1 ex., 632 mm; Coll : D. V. Rao, Reg. No. 1798.

Diagnostic features : D. VIII + I, 36; A. III, 24; P. 22. Head broad and depressed; scales small and embedded in skin; first dorsal fin spines short and free, not connected by membrane; caudal fin lunate, upper lobe longer. Body dark-brown with two narrow silvery bands on sides, belly yellowish.

Habitat : Found in outer reef areas.

Distribution : Wide spread in all warm Oceans.

Family ECHENEIDAE

Body elongate and sub-cylindrical; head flattened and bearing a laminated adhesive disc which is a modified 1st dorsal fin; dorsal and anal fin bases long, no spines in fins.

Genus *Echeneis* Linnaeus, 1758

Echeneis naucrates Linnaeus, 1758

1758. *Echeneis naucrates* Linnaeus. *Syst. Nat.*, ed. 10, p. 261.

1986. *Echeneis naucrates* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 562, pl. 82.

Material examined : Hut Bay (Little Andaman), 14.9.1990, 3 exs., 143-343 mm; Coll : K. V. Raman & party, Reg. No. 2834; Rangat (Middle Andaman), 19.8.1991, 3 exs., 283-375 mm, Coll : K. Chandra & party, Reg. No. 2836; South Reef Is. (North Andaman), 23.3.1993, 3 exs., 154-432 mm, Coll : G. C. Rao & party Reg. No. 2837; Rutland Is. (South Andaman), 18.10.1993, 2 exs., 321 & 362 mm, Coll : D. V. Rao & party, Reg. No. 2835.

Diagnostic features : D. 34-38; A. 34-35; P. 22-24; V. I, 5. Depth 9.8-12.2 head 5.2-5.4 in standard length. Dorsal and anal fin bases long; head flat with sucking disc of 24-28 laminae; lower jaw projecting; caudal fin truncate, central rays slightly produced. Body grey with broad white edged black stripe from tip of lower jaw, through eye to caudal fin leaving the margin of the fin white; all fins light brown.

Habitat : Found around coral reefs and reef slopes.

Distribution : Circumtropical distribution.

Family CARANGIDAE

Body compressed, elongate and fusiform; caudal peduncle rather slender; head keeled dorsally; teeth feeble, either in single or in bands ; vomer and palatine dentate; two dorsal fins; finlets present behind dorsal and anal fins in few species; caudal fin forked; scales small and cycloid, those in straight part of lateral line often modified as enlarged thickened spiny scutes.

Key to Genera

- 1a Posterior straight part of lateral line with scutes; pectoral long and falcate 2
- 1b No scutes on lateral line; pectoral usually shorter than head 10
- 2a Finlets 8-9 behind dorsal and anal fins. *Megalaspis*
- 2b No finlets behind fins 3
- 3a Body superficially naked; scales minute and embedded in skin; 1st dorsal spine not connected by a membrane; dorsal and anal fin lobes extremely long and filamentous, especially in juveniles *Alectis*
- 3b Body with small scales, not embedded in skin; dorsal spine connected by membrane; fins normal as long as body depth 4
- 4a No teeth in upper jaw 5
- 4b Teeth present in both jaws 6
- 5a Single series of minute teeth in lower jaw; rudimentary teeth on tongue; lateral line scutes 25-35 *Selaroides*
- 5b No teeth in jaws; lateral line scutes 17-25 *Gnathanodon*
- 6a Adipose eye lid completely covering eye except for a vertical slit *Atule*
- 6b Adipose eye lid covering posterior half of eye 7
- 7a Shoulder girdle with a deep furrow, below large fleshy papilla *Selar*

- 7b No furrow on lower part of gill opening 8
- 8a Both jaws with a single row of comb-like teeth; adipose eye lid well developed
..... ***Alepes***
- 8b Dentition not as above; adipose eye lid, if present, variously developed 9
- 9a Upper jaw with an outer series of moderate to strong canines and inner band of fine teeth; lower jaw with single row of teeth; scutes prominent; breast rarely entirely naked ***Caranx***
- 9b Both jaws with a band of villiform teeth; outer row may be slightly enlarged; lower jaw with single series; scutes weakly developed; breast usually naked, rarely fully scaled ***Carangoides***
- 10a Second dorsal and anal bases about equal in length; no caudal peduncle groove
..... 11
- 10b Second dorsal fin base much longer than anal fin base; caudal peduncle groove present dorsally and ventrally 12
- 11a Body slender, finlets present; fins not strongly falcate; scales elongate or needle like
..... ***Scomberoides***
- 11b Body relatively deep; no finlets; fins strongly falcate; scales normal, oval-shaped
..... ***Trachinotus***
- 12a Single 2-rayed finlet behind end of dorsal and anal fins; maxilla reaches before eye
..... ***Elagatis***
- 12b No finlets behind fins; maxilla reaches below eye 13
- 13a Maxilla broadly rounded; gill rakers 4-10, Knob-like, mostly rudiments; snout less than twice eye diameter ***Seriolina***
- 13b Maxilla truncate; gill rakers 11-29, mostly well developed; snout twice eye diameter
..... ***Seriola***

Genus ***Alectis*** Rafnesque, 1815

Alectis ciliaris (Bloch, 1788)

1788. *Zeus ciliaris* Bloch, *Nat. Ausland Fische*, 6 : 29, pl. 191.

1986. *Alectis ciliaris* Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 640, pl. 79.

Material examined : Shoal Bay (South Andaman), 27.4.1978, 3 exs., 80-190 mm, Coll : S. Chakrapani Reg. No. 1768; Grub Is. (South Andaman), 6.12.1990, 1 ex., 98 mm, Coll : K. V. Raman & party, Reg. No. 2361; Mayabunder (North Andaman), 15. 8.1991, 2 exs., 80-150 mm, Coll : K.

Chandra & party, Reg. No. 1769; Port Blair (South Andaman), 31.7.1993, 1 ex., 56 mm, Coll : D. V. Rao, Reg. No. 3005.

Diagnostic features : D. VIII + I, 19-22; A, II + I, 16-18. Depth 1.7-1.9, head 2.7-3.1 in standard length; body strongly compressed and deep, head elevated, snout rather short, chin prominent; sub-orbital depth 1.8-2.4 in upper jaw length; gill rakers on lower arm of first arch 13-16; anterior dorsal and anal fin rays extremely long and filamentous in young; scales smooth and embedded in skin. Body silvery; dark small spot on upper side of opercle; outer edge of pectoral fin dusky, rest of the fin pale.

Habitat : Found in coastal waters.

Distribution : Wide spread in all tropical marine waters.

Genus *Alepes* Swainson, 1839

Key to Species

- 1a Lateral line moderately arched anteriorly to below 4th to 6th dorsal ray; ventral profile of body more convex than its dorsal profile *A. para*
- 1b Lateral line strongly arched anteriorly to below 2nd to 4th dorsal ray; dorsal and ventral profile of body evenly convex..... *A. djedaba*

Alepes djedaba (Forsskal, 1775)

1775. *Scomber djedaba* Forsskal, *Descript Animal*, p. 56.

1986. *Alepes djedaba* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 641, pl. 79.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 3 exs., 145-170 mm, Coll : G. C. Rao & party, Reg. No. 1767; Diglipur (North Andaman), 26.2.1990, 1 ex., 148 mm, Coll : K. V. Raman & party, Reg. No. 1464.

Diagnostic features : D. VIII + I, 23-24; A. II + I, 18-20; P. 21. Depth 3.0-3.2, head 3.6-4.1 in standard length, eye 4.0-4.15 in head, equal to snout; body oblong and compressed; dorsal and ventral profiles equally convex; jaws nearly equal; adipose eye lid well developed on posterior half of eye only; lateral line with 42-46 scutes. Body greyish-green above, silvery below with distinct black blotch on upper edge of opercle, bordered above by a small white spot; fins pale yellow; upper lobe of caudal fin dusky distally.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indian Ocean from Red Sea and east coast of Africa to Thailand.

Alepes para (Cuvier, 1838)

1838. *Caranx para* Cuvier, *Hist Nat.Poiss.*, 9 : 58.

1984. *Alepes para* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 440.

Material examined : Mayabunder (North Andaman), 11.1.1992, 1 ex., 153 mm, Coll : D. V. Rao, Reg. No. 1929.

Diagnostic features : D. VIII + I, 26; A. II + I, 19; P. 21, V. I. 5. Depth 2.64, head 3.5 in standard length, eye 3.1 in head, slightly greater than snout; body ovate, tapering posteriorly; ventral profile of body more convex than dorsal; maxillary extends to below anterior third of eye; jaws with a single row of comb-like teeth; adipose eyelid on posterior part of eye only; pectoral fins falcate, much longer than head; 41 scutes on lateral line; 29 gill rakers on lower arm of first arch. Body greenish-silvery with light yellow reflections; a black spot on upper end of opercle.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-Pacific region.

Genus *Atule* Jordan & Jordan, 1992

Atule mate (Cuvier, 1833)

1833. *Caranx mate* Cuvier, in Cuv. & Val. *Hist. Nat. Poiss.*, 9 : 54.

1986. *Atule mate* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 641, pl. 79.

Material examined : Shoal Bay (South Andaman), 27.4.1978, 1 ex. 150 mm, Coll : S. Chakrapani, Reg. No. 03; Chidiyatapu (South Andaman), 23.8.1987, 2 exs., 130 & 185 mm, Coll : H. S. Mehta & party, Reg. No. 2011; Hut Bay (Little Andaman), 27.10.1991, 3 exs, 80-175 mm, Coll : P. T. Rajan, Reg. No. 1763, 1764; Mayabunder (North Andaman), 9.1.1992, 1 ex., 202 mm, Coll : D. V. Rao, Reg. No. 1816; 30.5.1993, 2 exs., 152 mm, Coll : H. S. Mehta & party, Reg. No. 2349; Port Blair (South Andaman), 31.7.1993, 1 ex., 165 mm, Coll : D. V. Rao & party, Reg. No. 3007.

Diagnostic features : D. VIII + I, 23-29; A. II + I, 20; P. 22-23; V. I, 5. Depth 3.5-3.58, head 3.5-3.7 in standard length; eye 3.6-4.0 in head; body oblong and compressed; belly not carinate; lower jaw prominent; adipose eyelid well developed, covering all eye except a vertical slit centered on pupil; last dorsal and anal fin rays finlet-like; 45-48 strong scutes on lateral line. Body olive-green dorsally, shading to white ventrally; 9-19 grey bands wider than pale interspaces present dorsolaterally; a black spot on opercle; dorsal and caudal fins dusky-yellow; anal fin pale; pectoral and ventral fins white.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Genus *Carangoides* Bleeker, 1851*Key to Species*

- 1a Naked area of breast separated from naked base of pectoral by a broad band of scales 2
- 1b Naked area of breast and naked area of pectoral base uninterrupted by scales 4
- 2a Lateral line with 37-45 scutes, straight part slightly longer than curved part *C. oblongus*
- 2b Lateral line with 20-38 scutes, straight part shorter than curved part 3
- 3a Dorsal rays 17-19; small dark blotches on back between base of dorsal rays; naked area of breast doesnot extend past ventral origin *C. dinema*
- 3b Dorsal rays 20-23; sides of body with small yellow spots; naked area of breast extends well beyond ventral origin *C. caeruleopinnatus*
- 4a Gill rakers 20-27; distinct bump in inter-orbital region *C. hedlandensis*
- 4b Gill rakers 31-38; no bump in inter-orbital region 5
- 5a Height of dorsal fin lobe shorter than head length; small scaleless area anteriorly just above pectoral base *C. malabaricus*
- 5b Height of dorsal fin lobe longer than head length; area above pectoral base completely scaled *C. armatus*

Carangoides armatus (Ruppell, 1830)

1830. *Setula armata* Rupell, *Atlas. Nordl. Afr. Fische. Rothen Meeres.*, p. 103,

1986. *Carangoides armatus* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 643, fig. 210.3.

Material examined : Wrigthmyo (South Andaman), 4.2.1989, 2 exs., 165 & 203 mm, Coll : G. C. Rao & party, Reg. No. 1631 & 1761; Little Andaman, 23.10.1990, 1 ex. 110 mm, Coll : P. T. Rajan, Reg. No. 1762; North Bay (South Andaman), 30.7.1991, 1 ex., 147 mm, Coll : P. T. Rajan, Reg. No. 1630; Havelock Is. (Ritchie's Archipelago), 20. 11. 1991, 1 ex., 165 mm, Coll : D. V. Rao, Reg. No. 1723.

Diagnostic features : D. VIII + I, 19-22; A. II + I, 16-18. Depth twice in standard length, head 3.2-3.4 in standard length, eye 3.4-3.6 in head equal to snout and inter-orbital space; body oval and strongly concave; maxilla reaching to front border of pupil; adipose eye lid feebly developed; gill rakers 32-36 on first arch; 22-24 scutes on lateral line; area above pectoral base completely scaled; soft dorsal lobe falcate, longer than head length. Body bluish-grey dorsally, silvery below; black spot on opercular margin; ventral fin pale to blackish.

Habitat : Found in coastal waters near reefs.

Distribution : Wide spread in Indo-Pacific region.

***Carangoides caeruleopinnatus* (Ruppell, 1830)**

1830. *Caranx caeruleopinnatus* Ruppell, *Atlas. Nordl. Afr. Fische, Rothen Meeres.* p. 100; pl. 13, fig. 2

1986. *Carangoides caeruleopinnatus* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 643, fig. 210.6.

Material examined : Mayabunder (North Andaman), 15.8.1991, 1 ex. 145 mm, Coll : K. Chandra & party, Reg. No. 2352; Rangat (Middle Andaman), 19.8.1991, 2 exs., 145 & 167 mm, Coll : K. Chandra & party, Reg. No. 1759; Grub Is. (South Andaman), 6.2.1990, 1 ex., 104 mm, Coll : K. V. Raman & party, Reg. No. 2360; Port Blair (South Andaman), 31.7.1993, 1 ex., 99 mm, Coll : D. V. Rao & party, Reg. No. 3006.

Diagnostic features : D. VIII + I, 23; A. II + I, 19; P. 20 V. I, 5. Body sub-ovate; maxillary reaching to middle of eye; smaller than snout length; 23-24 gill rakers on first gill arch; breast naked upto behind pectoral fin origin and laterally upto pectoral base; lateral line with 30 scutes; pectoral fin falcate. Body bluish above, silvery below; a black spot on operculum; tips of median fins dusky. Juveniles with 6 vertical dark bands on sides.

Habitat : Found in shallow reef areas.

Distribution : Wide spread in Indo-Pacific region.

****Carangoides dinema* Bleeker, 1851**

1851. *Carangoides dinema* Bleeker, *Nat. Tijds. Ned. Indie.*, 1 : 365.

1986. *Carangoides dinema* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 643, fig. 210.8.

Material examined : Port Blair (South Andaman), 30.7.1991, 1 ex., 84 mm, Coll : D. V. Rao & Kamla Devi, Reg. No. 2383.

Diagnostic features : D. VIII + I, 18; A. II + I 16; P. 20; V. I, 5. Depth 2.3, head 2.7 in standard length; breast naked upto ventral origin; laterally naked area separated from naked pectoral base by a band of scales; 29 scutes on lateral line; anterior dorsal rays slightly longer. Body light green above, silvery-white below; dark blotches on back between bases of dorsal rays.

Habitat : Found in shallow reef areas.

Distribution : Indo-West Pacific, from east coast of Africa to Andaman Is, Sri Lanka and Indonesia to Japan and Tonga Islands.

***Carangoides hedlandensis* (Whitely, 1934)**

1934. *Olistus hedlandensis* Whitely, *Rec. Aust. Mus.*, 19 : 156, fig. 2.

1986. *Carangoides hedlandensis* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 645, pl. 80.

Material examined : Mayabunder (North Andaman), 11.1.1992, 1 ex., 95 mm, Coll : D. V. Rao, Reg. No. 2356; Port Blair (South Andaman), 31.7.1993, 1 ex., 98 mm, Coll : D. V. Rao & party, Reg. No. 3008.

Diagnostic features : D. VIII + I, 12; A. II + I, 16; P. 20; V. I, 5. Depth 1.8, head 1.4 in standard length; eye 2.8 in head, almost equal to snout; head profile extremely steep with a distinct break in the interorbital region; 23 gill rakers on first arch; lateral line straight below 13th soft dorsal ray, with 22 scutes; soft dorsal fin lobe longer than head length; anterior soft rays of dorsal and anal fins strongly elevated and produced. Body greenish blue above, silvery-grey below; black blotch on upper opercular margin; ventral fin blackish; caudal fin yellowish.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-Pacific region.

***Carangoides malabaricus* (Bloch & Sch., 1801)**

1801. *Scomber malabaricus* Bloch & Schneider, *Syst. Ichth.*, p. 31.

1986. *Carangoides malabaricus* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 645, fig. 210.14.

Material examined : Little Andaman, 20.9.1990, 1 ex., 110 mm, Coll : K. V. Raman & party, Reg. No. 1632.

Diagnostic features : D. VIII + I, 22; A. II + I, 18; P. 18; V. I, 5. Depth 2.0, head 3.0 standard length, eye 3.3 in head; body oblong; dorsal profile strongly concave with a concavity before nostrils; maxilla reaching to front border of eye; lower jaw prominent; breast naked from behind ventral fin origin and laterally to pectoral base including small area anteriorly just above fin; 37 gill rakers on first arch; 32 scutes on lateral line; soft dorsal fin less than head. Body silvery, bluish-grey above; a black blotch on operculum; fins pale yellow.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-Pacific region.

***Carangoides oblongus* (Cuvier, 1833)**

1833. *Caranx oblongus* Cuvier, in Cuv. & Val., *Hist. Nat. Poiss.*, 9 : 128.

1986. *Carangoides oblongus* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 645, fig. 210. 15.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 300 mm, Coll : G. C. Rao & party, Reg. No. 1760; Mayabunder (North) Andaman), 15.8.1991, 1 ex., 260 mm, Coll : K. Chandra & party, Reg. No. 1724.

Diagnostic features : D. VIII + I, 21 ; A. II + I, 18; P. 20; V. I, 5. Depth 2.7, head 3.15 in standard length, eye 3.8 in head; body oblong; dorsal and ventral profiles equally convex; maxillary reaching to below anterior part of eye; breast naked upto ventral fin origin, laterally naked area separated from naked base of pectoral by a broad band of scales; 38 scutes on lateral line; 27 gill rakers on first arch. Body bluish-green above, silvery below with faint dark cross bands; fins light yellow with dusky patches on dorsal and anal fins.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Genus *Caranx* Lacepede, 1801

Key to Species

- 1a Breast completely scaled; upper jaw extending to front or posterior border of eye 2
- 1b Breast naked ventrally, with small patch of scales in front of ventrals; upper jaw extending to below or middle of eye *C. carangus*
- 2a Anal fin rays 17-20; lateral line moderately arched; upper half of head and body with blue-black spots; dorsal lobe without white tip; margin of opercle without black spot *C. melampygus*
- 2b Anal fin rays 14-16; lateral line strongly arched; no blue-black spots on body; dorsal lobe with white tip; black spot on margin of opercle *C. sexfasciatus*

Caranx carangus Bloch 1793

1793. *Scomber carangus* Bloch, *Nat. Ausland Fische.*, 7 : 69.

1993. *Caranx carangus* : Rao *et al*, *Environment & Ecology*, 11 (4) : 884.

Material examined : Mayabunder (North Andaman), 10. 1. 1992, 1 ex., 260 mm, Coll : D. V. Rao, Reg. No. 2376.

Diagnostic features : D. VIII + I, 22; A. II + I, 16; P. 21, V. I. 5. Depth 2.7, head 3.2 in standard length, eye 4.0 in head, almost equal to snout; lower jaw slightly prominent; breast naked ventrally, with a small patch of scales in front of ventral fins; anterior part of lateral line arched; straight part of lateral line commences below 6th soft dorsal fin ray, with 36 scutes; pectoral fin falcate, longer than head. Body silvery, darker above with golden line; small opercular spot present; all fins hyaline; margin of soft dorsal and upper lobe of caudal fin blackish.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-Pacific region.

Caranx melampygus Cuvier, 1801

1801. *Caranx melampygus* Cuvier, in Cuv. & Val. *Hist. Nat. Poiss.*, 9 : 116.

1986. *Caranx melampygus* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 647, fig. 210.19.

Material examined : Mayabunder (North Andaman), 15. 8.1991, 3 exs., 127-164 mm, Coll : K. Chandra & party, Reg. No. 1758; 9.1.1992, 2 exs., 182 & 260 mm, Coll : D. V. Rao & party, Reg. No. 1847 & 1928.

Diagnostic features : D. VIII + I, 23; A. II + I, 19-20; P. 19-20; V. I. 5. Depth 2. 52-2.72, head 3.3-3.6 in standard length, eye 4.2-4.3 in head, shorter than snout; body oblong, head profile fairly steep; 9 gill rakers on first arch; breast completely scaled; 36-39 scutes on lateral line. Body greenish-blue, silvery white on lower sides; black spot on upper back and sides; lobes of dorsal and anal fins dark; pectoral fins light yellow.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-Pacific region.

***Caranx sexfasciatus* Quoy & Gaimard, 1824**

1824. *Caranx sexfasciatus* Quoy & Gaimard, *Voy. Uranie, Physic. Zool.*, p. 358, pl. 65.

1986. *Caranx sexfasciatus* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 648, fig. 210.22.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 255 mm, Coll : G. C. Rao & party, Reg. No. 1766; Little Andaman, 19.9.1990, 1 ex., 168 mm, Coll : K. V. Raman & party, Reg. No. 1817; Nancowrie Is. (Nicobar Group), 10.2.1993, 1 ex., 166 mm, Coll : D. V. Rao & party, Reg. No. 2311; Prot Blair (South Andaman), 19.11.1992, 2 exs., 70 & 96 mm, Coll : D. V. Rao, Reg. No. 2122; Narcondam Is. (North Andaman), 14.3.1994, 1 ex., 173 mm, Coll : D. V. Rao, Reg. No. 2557.

Diagnostic features : D. VIII + I, 20-21; A. II + I, 15-16; P. 19-20; V. I, 5. Depth 2.57-2.6, head 2.92-3.16 in standard length, eye 3.1-4.0 in head; body oblong, upper and lower profiles equal, nape elevated; maxilla extends to posterior edge of eye; gill rakers 16-17 on lower arm of first arch; 32-34 strong scutes on lateral line; breast completely scaled. Body blue-green above, silvery below; small black spot on upper edge of opercle; tip of soft dorsal and anal fins white; caudal fin dusky.

Habitat : Found in coastal waters near reefs.

Distribution : Wide spread in Indo-Pacific region.

Genus *Elegatis* Bennett, 1840

***Elegatis bipinnulata* (Quoy & Gaimard, 1824)**

1824. *Seriola bipinnulata* Quoy & Gaimard, *Voy. Urani. Physic. Zool.*, 1 : 363, pl. 16, fig. 3.

1986. *Elegatis bipinnulata* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 652, fig. 210.31.

Material examined : Barren Is. (North Andaman), 25.3.1990, 1 ex., 276 mm, Coll : P. T. Rajan, Reg. No. 1974.

Diagnostic features : D. VI + I, 26 + 2; A. I + I, 20 + 2. Body elongate and fusiform; eyes with very narrow adipose lid; maxillary reaches to below mid-way to nostril and eye; no scutes on lateral line; caudal peduncle groove present dorsally and ventrally; pectoral fins shorter than head. Body dark olive-blue above, white below; two narrow bluish white stripes along sides, with a broad yellow stripe between them; all fins light yellow.

Habitat : Found in coastal waters near reef areas.

Distribution : Wide spread in Indo-West Pacific region.

Genus *Gnathanodon* Bleeker, 1851

Gnathanodon speciosus (Forsskal, 1775)

1775. *Scomber speciosus* Forsskal, *Descript Animal*, p. 54.

1986. *Gnathanodon speciosus* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 652, fig. 210. 32.

Material examined : Panighat (South Andaman), 24.2.1991, 1 ex., 183 mm, Coll : P. T. Rajan, Reg. No. 1590; Rangat (Middle Andaman), 19.8.1991, 1 ex., 172 mm, coll : K. Chandra & party, Reg. No. 1667.

Diagnostic features : D. VI + I + 18-20; A. II + I, 15; P. 18-19; V. I. 5. Depth 2.35, head 3.31 in standard length, eye 4.2 in head; feeble teeth in lower jaw; lips thick; breast completely scaled. Body yellowish silvery with 8-10 black bars, alternating broad and narrow; all fins yellow; caudal fin tips black.

Habitat : Found around reef slopes in large numbers.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Hawaiian Islands.

Genus *Megalaspis* Bleeker, 1851

Megalaspis cordyla (Linnaeus, 1758)

1758. *Scomber cordyla* Linnaeus, *Syst. Nat.*, I : 298.

1986. *Megalaspis cordyla* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 653, fig. 210.34.

Material examined : Rangat (Middle Andaman), 19.8.1991, 2 exs., 190 & 230 mm, Coll : K. Chandra & party, Reg. No. 1890; Mayabunder (North Andaman), 15.8.1991, 1 ex., 200 mm, Coll : K. Chandra & party, Reg. No. 2095; Port Blair (South Andaman), 24.8.1993, 1 ex., 192 mm, Coll : D. V. Rao. Reg. No. 2502.

Diagnostic features : D. VIII + I, 10 + 8 - 9 finlets; A. II + I, 8 + 9 - 10 finlets; P. 22; V. I, 5. Depth 3.37-4.1 in standard length, head slightly less than depth, eye 4.0 in head; body torpedo-shaped; adipose lids well developed; scales small; breast naked; lateral line with a short curve, straight part with 54-56 strong and very large scutes; caudal peduncle very slender. Body green above, silvery below; prominent black spot on upper edge of operculum; all fins light yellow.

Habitat : Found around reef areas.

Distribution : Wide spread in Indo-Pacific region.

Genus *Scomberoides* Lacepede, 1801

1a Total gill rakers on first arch 21-27; distal half of dorsal fin lobe uniformly pigmented; blotches intersecting lateral line or not..... 2

- 1b Total gill rakers on first arch 8-15; dorsal fin lobe abruptly or heavily pigmented; colouration not as above 3
- 2a Large oval patches above or touching lateral line; upper jaw extends well beyond posterior margin of eye *S. commersonnianus*
- 2b Vertical elongate blotches intersecting lateral line; upper jaw extends slightly beyond posterior margin of eye *S. tala*
- 3a Scales on mid body below lateral line lanceolate a double series of 6-8 dusky roundish blotches above and below lateral line *S. lysan*
- 3b Scales on mid body below lateral line slender, needle-like; vertical oblong blotches on body the 4-5 intersecting lateral line *S. tol*

***Scomberoides commersonnianus* Lacepede, 1802**

1802. *Scomberoides commersonnianus* Lacepede, *Hist. Nat. Poiss.*, 2. 50.

1986. *Scomberoides commersonnianus* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes.*, 655, fig. 210.38.

Material examined : Diglipur (North Andaman), 26.3.1990, 1 ex., 275 mm, Reg. No. 1477; Rangat (Middle Andaman), 19.8.1991, 1 ex., 245 mm, Coll : K. Chandra & party, Reg. No. 1930; Havelock Is. Ritchie's Archipelago), 20.11.1991, 1 ex., 254 mm, Coll : D. V. Rao, Reg. No. 1726; Bambooflat (South Andaman), 14.9.1992, 1 ex., 220 mm, Coll : P. T. Rajan, Reg. No. 2096.

Diagnostic features : D. VII + I, 20-21; A, II + I; 18-19; P. 18; V. I, 5. Depth 3.0-3.2, head 4.3-4.4 in standard length, eye 4.0-5.1 in head. Body compressed with blunt snout and depression over eyes; upper jaw extending well beyond eye; no scutes; 9-10 gill rakers on first arch. Body dusky green above, silvery below with 6-9 large oval blotches above or slightly below lateral line, the first two blotches intersecting lateral line; pectoral fins pale, with dusky blotch ventrally; ventral fins white.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

***Scomberoides lysan* (Forsskal, 1775)**

1775. *Scomber lysan* Forsskal, *Descript Animal*, p. 54.

1986. *Scomberoides lysan* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 655, fig. 210.

Material examined : Mayabunder (North Andaman), 10.1.1992, 1 ex. 285 mm, Coll : D. V. Rao, Reg No. 1927; Nancowry Is. (Nicobar Group), 10.2.1933, 1 ex., 394 mm, Coll : D. V. Rao & party, Reg. No. 2500.

Diagnostic features : D. VII + I, 21; A. II + I, 19; P. 17; V. I, 5. Depth 3.6, head 4.38 in standard length, eye 5.1 in head; jaws equal, maxilla extends to rear margin of eye; no scutes; scales on mid body below lateral line lanceolate; gill rakers on lower arm of first arch 24. Body grey-green above, silvery-white below; double series of 6-8 dusky roundish blotches above and below lateral line; distal half of dorsal fin lobe heavily pigmented; anal fin with small dusky blotch on anterior part.

Habitat : Found in coastal waters near reef areas.

Distribution : Wide spread in Indo-West Pacific region.

***Scomberoides tala* (Cuvier, 1831)**

1831. *Chironemus tala* Cuvier, *Hist. Nat. Poiss.*, 8 : 377.

1984. *Scomberoides tala* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 478.

Material examined : Mayabunder (North Andaman), 19.8.1991, 1 ex. 355 mm, Coll : K. Chandra & party, Reg. No. 1770.

Diagnostic features : D. VII + I, 20; A. II + I, 18; P. 17; V. I, 5. Depth 3.55, head 4.8 in standard length, eye 4.14 in head, snout pointed; maxillary reaching to slightly beyond posterior margin of eye; 13 gill rakers on first arch; scales on body lanceolate; pectoral fins shorter than head. Body greyish silvery, the flanks with 6 vertically elongate blotches intersecting lateral line; dorsal and anal fins pigmented.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

***Scomberoides tol* (Cuvier, 1832)**

1832. *Chironemus tol* Cuvier, *Hist. Nat. Poiss.*, 8 : 385.

1986. *Scomberoides tol* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 655, fig. 210.40.

Material examined : Port mout (South Andaman), 5.2.1991, 1 ex., 157 mm, Coll : P. T. Rajan, Reg. No. 1577; Mayabunder (North Andaman), 15.8.1991, 2 exs., 105 & 205 mm, Coll : K. Chandra & party, Reg. No. 1808; 11.1.1992, 1 ex., 260 mm, Coll: D. V. Rao, Reg. No. 1931.

Diagnostic features : D. VII + I, 20; A. II + I, 18; P. 17; V. I, 5. Depth 3.8-4.2, head 4.3-4.5 in standard length, eye 5.2-5.4 in head. Dorsal profile of body more convex than ventral profile; cleft of mouth commences opposite to middle of eye; maxilla not reaching to rear margin of eye; no scutes; 24-25 gill rakers on first arch. Body bluish above, silvery below with 5-8 vertically oblong black blotches on sides, the anterior 3-4 intersect lateral line; distal half of dorsal fin pigmented; caudal fin dusky.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Genus *Selar* Bleeker, 1851

Key to Species

- 1a Lateral line becoming straight below origin of soft dorsal fin, with 44-47 scutes; broad golden yellow band from eye to caudal peduncle *S. boops*
- 1b Lateral line becoming straight below middle of soft dorsal fin, with 32-38 scutes; no lateral band on sides of body *S. crumenophthalmus*

Selar boops (Cuvier, 1833)

1833. *Caranx boops* Cuvier, *Hist. Nat. Poiss.*, 9 : 46.

1984. *Selar boops* : Talwar & Kacker *Commercial Sea Fishes of India*, p. 480, fig. 184.

Material examined : Havelock Is. (Ritchie's Archipelago), 22.11.1991, 1 ex., 215 mm, Coll : D. V. Rao, Reg. No. 1727.

Diagnostic features : D. VIII + I, 24; A. II + I, 21; P. 19; V. I., 5. Depth 3.2, head 3.3 in standard length, eye 3.1 in head. maxilla reaching to mid-orbit; adipose eye lids well developed; 23 gill rakers on lower arm of first arch; a deep furrow in lower margin of gill opening; no naked area on breast; lateral line with 45 scutes. Body dark blue above, silvery-gold below; a distinct broad golden band from eye to caudal fin base; a black spot on operculum.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-Pacific region.

Selar crumenophthalmus (Bloch, 1739)

1739. *Scomber crumenophthalmus* Bloch, *Nat. Ausland Fische.*, 7 : 77, pl. 343.

1986. *Selar crumenophthalmus* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 656, fig. 210.41.

Material examined : Little Andaman, 23.10.1991, 1 ex., 125 mm, Coll : P. T. Rajan, Reg. No. 1765; Bambooflat (South Andaman), 14.9.1992, 1 ex., 220 mm, Coll : P. T. Rajan, Reg. No. 2096; Nancowry (Nicobar Group), 10.2.1993, 7 exs., 100-147m, Coll : D. V. Rao & party, Reg. No. 2313; Port Blair (South Andaman), 31.7.1993, 1 ex., 147 mm, Coll : D. V. Rao & party, Reg. No. 3009.

Diagnostic features : D. VIII + I, 25-26; A. II + I, 21-22; P.19; V.I, 5. Depth 3.45-3.55, head 3.1-3.21 in standard length, eye 2.9-3.0 in head; maxillary reaches to front edge of pupil; eye lids well developed; a deep furrow in lower margin of gill opening with a large papillae immediately above it and smaller papillae near upper edge; 27 gill rakers on lower arm of first arch; lateral line slightly curved anteriorly, becoming straight below middle of soft dorsal fin with 33-34 scutes. Body metallic-blue above, shading to white below; operculum with a large black spot; fins pale green; caudal fin lobes dusky.

Habitat : Found in shallow coastal waters.

Distribution : All tropical and Sub-tropical waters.

Genus *Selaroides* Bleeker, 1851*Selaroides leptolepis* (Cuvier, 1833)

1833. *Caranx leptolepis* Cuvier, *Hist. Nat. Poiss.*, 9 : 63.

1993. *Selaroides leptolepis* : Rao *et al*, *Environment & Ecology*, 11(4) : 884.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 132 mm, Coll : G. C. Rao & party, Reg. No. 2391; Mayabunder (North Andaman), 15.8.1991, 1 ex., 133 mm, Coll : K. Chandra & party, Reg. No. 2389; Port Blair (South Andaman), 8.10.1992, 1 ex., 142 mm, Coll : D. V. Rao & party, Reg. No. 2390.

Diagnostic features : D. VIII + I, 24-25; A, II + 1, 20; P. 15; V. I, 5. Depth and head 3.3 in standard length; no teeth on upper jaw, vomer and palatines; eye with a broad posterior adipose eyelid; pectoral fin falcate; breast with small conspicuous scales; 25-33 scutes on lateral line. Body dark blue-green above, silvery below; a golden yellow band from eye to caudal fin; a distinct dusky spot on operculum; fins light yellow.

Habitat : Found in coral reef areas.

Distribution : Wide spread in Indo-Pacific, from Gulf of Oman to Australia.

Genus *Seriolina* Wakiya, 1924*Seriolina nigrofasciatus* (Ruppell, 1828)

1828. *Nomeus nigrofasciatus* Ruppell, *Atlas Nordl. Afr. Fische, Rothen. Meeres.*, p. 92, pl. 24.

1986. *Seriolina nigrofasciatus* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 657, fig. 210.46.

Material examined : Panighat (South Andaman), 26.8.1992, 2 exs., 195 mm, Coll : P. T. Rajan, Reg. No. 2023.

Diagnostic features : D. VII + I, 34; A. II + I, 16. Depth and head 2.7 in standard length, eye 4.2 in head, almost equal to snout; snout blunt; maxilla reaching to below rear margin of eye; 6 gill rakers on lower arm of first arch; anal fin base about half length of dorsal fin base; pectoral fin falcate, shorter than head; scales small, breast scaled; no scutes; caudal peduncle grooves present. Body bluish-grey to black above, silvery-grey below with 5-6 dark oblique bands on upper half of body; spinous dorsal black; soft dorsal and anal fins dusky-brown, tips white; caudal and ventral fins yellowish.

Habitat : Found in coastal waters near reefs.

Distribution : Wide spread in Indo-Pacific region.

Genus *Trachinotus* Lacepede, 1801*Key to Species*

- 1a No lateral spots on body; dorsal rays 18-20; dorsal lobe much longer than anal lobe
 *T. blochii*

- 1b Two to five lateral black spots on body; dorsal rays 20-24; dorsal lobe shorter than anal lobe *T. baillonii*

***Trachinotus baillonii* Lacepede, 1801**

1801. *Caesiomorus baillonii* Lacepede, *Hist. Nat Poiss.*, 3 : 92, pl. 3, fig. 1.

1986. *Trachinotus baillonii* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 658, fig. 210.48.

Material examined : Port Blair (South Andaman), 25.1.1985, 1 ex., 186 mm, Coll : H. S. Mehta & party, Reg. No. 1344; Smith Is. (North Andaman) 14.2.1990, 12 exs., 175-235 mm, Coll : G. C. Rao & party, Reg. No. 1795.

Diagnostic features : D. VI + I, 20-22; A. II + I, 20-21; P. 18; V. I, 5. Depth 2.25-2.32, head 3.6 in standard length, eye 3.4-4.1 in head; body ovate, snout blunt, the profile from inter-orbital to 2nd dorsal fin origin convex; 15-16 gill rakers on lower arm of first arch; anterior rays of dorsal, anal and caudal fins produced. Body grey to silvery-blue above, silvery-white below; sides with 3-5 round black spots in longitudinal row on lateral line; dorsal, anal and caudal fins grey to dusky, the lobes dark.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

***Trachinotus blochii* (Lacepede, 1801)**

(Fig. 160)

1801. *Caesiomorus blochii* Lacepede, *Hist. Nat. Poiss.*, 3 : 92, pl. 3, fig. 2.

1986. *Trachinotus blochii* : Smith-Vaniz, in Smith & Heemstra, *Smith's Sea Fishes*, p. 659, fig. 210.49.

Material examined : Car Nicobar Is., 13.1.1992, 1 ex., 143 mm, Reg. No. 1864; Katchal Is. (Nicobar Group), 13.2.1993, 1 ex., 167 mm, Coll : D. V. Rao & party, Reg. No. 2501; Narcondam is. (North Andaman), 14.3.1994, 3 exs., 113-131 mm, Coll : D. V. Rao, Reg. No. 2558.

Diagnostic features : D. VI + I, 19; A. II + I, 16; P. 18; V. I, 5. Depth 1.6, head 3.0 in standard length, eye 3.5 in head; body deep and compressed; head profile smoothly rounded, snout blunt; 9-10 gill rakers on lower arm of first arch; dorsal, anal and caudal fins falcate; pectoral fins short; head naked except few scales behind eyes. Body silvery, paler below; dorsal and anal fins yellow, the lobes dark.

Habitat : Found in coastal waters near reefs.

Distribution : Wide spread in Indo-Pacific region.

Family MENIDAE

Body extremely compressed, disc-like; breast sharp; mouth protrusile; jaws with bands of villiform teeth; vomer and palatines edentate; single dorsal fin, spines rudimentary; anal fin base very long, the rays very short, embedded; caudal fin forked; first two rays of ventral fin long.

Genus *Mene* Lacepede, 1803

Mene maculata (Bloch & Sch., 1801)

(Fig. 161)

1801. *Zeus maculatus* Bloch & Schneider, *Syst. Ichth.*, p. 95, pl. 22.

1986. *Mene maculata* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 619.

Material examined : Port Blair (South Andaman), 14.10.1992, 1 ex., 132 mm, Coll : Kamla Devi, Reg. No. 2062.

Diagnostic features : D. III, 45; A. 33; P. 15; V. I. 5. Depth 1.45 in standard length; mouth protrudes upwards; first two rays of ventral fin fused and elongate; scales small, deciduous. Body dark blue above, silvery white below; 3 rows of dark spots immediately above and below lateral line; dorsal and caudal fins dusky.

Habitat : Found around reef areas.

Distribution : Wide spread in tropical Indo-West Pacific.

Family LEIOGNATHIDAE

Body deep and compressed and slimy; scales small not easily visible; head naked, the upper surface with bony ridges ending in a nuchal spine on nape; mouth very protractile which forms a tube when extended; small teeth in jaws; none on roof of mouth; canine teeth present or absent; dorsal fin single; caudal fin forked.

Key to Genera

- 1a Distinct canine teeth in jaws; protracted mouth points forward *Gazza*
- 1b No canine teeth in jaws; protracted mouth points upward or downward 2
- 2a Protracted mouth points upwards *Secutor*
- 2b Protracted mouth points downward or forward *Leiognathus*

Genus *Gazza* Ruppell, 1835

Gazza minuta (Bloch, 1797)

(Fig. 162)

1797. *Scomber minuta* Bloch, *Ichthyologic.*, p. 110, pl. 429.

1986. *Gazza minuta* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 620, pl. 71.

Material examined : Panchavati (Middle Andaman), 20.8.1991, 1 ex., 135 mm; Coll : K. Chandra & party, Reg. No. 1774; Rangat (Middle Andaman), 19.8.1991, 1 ex., 140 mm, Coll : K. Chandra &

party, Reg. No. 1772; Port Blair (South Andaman), 19.11.1992, 1 ex., 135 mm, Coll : D. V. Rao, Reg. No. 2120; Mayabunder (North Andaman), 11.1.1992, 4 exs., 75-80 mm, Coll : D. V. Rao. Reg. No. 3003; North Reef Is. (North Andaman), 25.3.1993, 2 exs., 63 mm, Coll : G. C. Rao & party, Reg. No. 3004.

Diagnostic features : D. VIII, 16; A. III, 14; P. 16; V. I, 5; L1. 58-59. Depth 2.2-2.45, eye equal to interorbital width; protracted mouth points forward. Body silvery with brownish wavy lines on upper half; pectoral axil black.

Habitat : Found in creeks and inshore waters.

Distribution : Wide spread in Indo-Pacific region.

Genus *Leiognathus* Lacepede, 1803

Key to Species

- 1a Cleft of mouth opposite lower third of eye; 2nd dorsal spine greatly elongate, exceeding body depth; second anal spine also elongated *L. leuciscus*
- 1b Cleft of mouth at or below lower edge of eye ; 2nd dorsal and anal spines elongate or not 2
- 2a Breast naked 3
- 2b Breast scaled..... 4
- 3a Second dorsal and anal spines elongated and filiform; no saddle-shaped blotch on nape*L. longispinis*
- 3b Dorsal and anal spines not elongated; dark saddle-shaped blotch on nape.....*L. brevirostris*
- 4a Second dorsal spine distinctly elongate and filiform; pectoral fin axil yellow*L. fasciatus*
- 4b Second dorsal spine not elongate; pectoral fin axil black or not 5
- 5a No dusky blotch on spinous dorsal fin; pectoral axil dusky*L. equula*
- 5b Dusky blotch on upper third of spinous dorsal; snout tip dusky; pectoral axil not dusky *L. splendens*

Leiognathus brevirostris (Valenciennes, 1835)

1835. *Equula brevirostris* Valenciennes, *Hist. Nat. Poiss.* 10 : 83.

1984. *Leiognathus brevirostris* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 506, fig. 196.

Material examined : Yerrata (Middle Andaman), 10.2.1979, 2 exs., 67 mm, Coll : H. S. Mehta & partry, Reg. No. 1337.

Diagnostic features : D. VIII, 16; A. III, 14. Depth 2.2 in standard length; dorsal and ventral profiles equally convex; mouth pointing downwards when protracted; cleft of mouth below lower border of eye; breast scaleless; head naked. Body silvery with brownish vertical irregular markings on back; a dark brown blotch on nape; pectoral axil with dark spots and yellow blotch; an yellow blotch on abdomen below pectoral fin.

Habitat : Found in shallow coastal waters.

Distribution : Indo-Pacific, from Pakistan, coasts of India, Andaman Is., Sri Lanka to Philippines and China.

***Leiognathus equula* (Forsskal, 1775)**

1775. *Scomber equula* Forsskal, Descript. Animal, p. 75.

1986. *Leiognathus equula* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, P. 620, fig. 201.3

Material examined : Port Blair (South Andaman) 25.10.1989, 1 ex., 81 mm, Coll : P. T. Rajan, Reg. No. 2382; Hut Bay (Little Andaman), 9.8.1990, 1 ex., 86 mm, Coll : K. V. Raman & party, Reg. No. 2163.

Diagnostic features : D. VIII, 16; A. III, 14; P. 18-20; V. I, 5. Depth 1.8-2.0 in standard length; no scales on cheek; mouth protrudes downwards; lower edge of preopercle serrated; nostrils below the top edge of orbit. Body silvery with faint narrow stripes on back and dark saddle on caudal peduncle; pectoral axil dusky; anal fin yellowish.

Habitat : Found near creeks and shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

***Leiognathus fasciatus* (Lacepede, 1803)**

1803. *Clupea fasciatus* Lacepede, *Hist. Nat. Poiss.*, 5 : 460, 463.

1984. *Leiognathus fasciatus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 511, fig. 199.

Material examined : Mayabunder (North Andaman), 15.8.1991, 3 exs., 82-140 mm, Coll : K. Chandra & party, Reg. No. 1827; Katchal Is. (Nicobar Group), 13.2.1993, 1 ex., 195 mm, Coll : D. V. Rao & party, Reg. No. 2279.

Diagnostic features : D. VIII, 16; A. III, 14; P. 20-21; V. I, 5. Depth 1.8-2.0 in standard length; mouth pointing downwards when protracted; cleft of mouth below lower edge of eye; supra-orbital rim smooth; second dorsal spine elongate and filiform. Body silvery with dark irregular vertical stripes on back; small dark blotch on caudal peduncle; pectoral fin axil yellowish, other fins hyaline.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

***Leiognathus leuciscus* (Gunther, 1860)**

1860. *Equula leuciscus* Gunther, *Cat. Fish. Brit. Mus.*, 2 : 503.

1984. *Leiognathus leuciscus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 514, fig. 201.

Material examined : Port Blair (South Andaman), 23.10.1989, 3 exs., 96-110 mm, Coll : P. T. Rajan, Reg. no. 2381; Mayabunder (North Andaman), 15.8.1991, 2 exs., 95-112mm, Coll : K. Chandra & party, Reg. No. 1828.

Diagnostic features : D. VIII, 16; A. III, 14; P. 18-20; V.I. 5. Depth 2.45-2.8 in standard length; dorsal and ventral profiles equally convex; mouth pointing downwards when protractile; second dorsal spine greatly elongate and filiform; second anal spine slightly elongated. Body silvery with greenish-vermicular pattern on back; pectoral axil with black dots.

Habitat : Found in shallow coastal waters.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. to Philippines and Australia.

***Leiognathus longispinis* (Valenciennes, 1835)**

1835. *Equula longispinis* Valenciennes, *Hist. Nat. Poiss*, 10 : 94.

1984. *Leiognathus longispinus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 515, fig. 202.

Material examined : Hut Bay (Little Andaman), 9.9.1990, 1 ex., 86 mm, Coll : K. V. Raman & party, Reg. No. 2162.

Diagnostic features : D. VIII, 16; A. III, 14; P. 18; V. I. 5. Depth 1.9 in standard length; dorsal profile more convex; mouth pointing downwards when protracted; second dorsal and anal fin spines greatly elongate and filiform; no scales on breast. Body silvery with 3 greenish-yellow spots below lateral line; pectoral axil yellow.

Habitat : Found in shallow coastal waters.

Distribution : Indo-Pacific, from coasts of India, Andaman Is. New Guinea, Philippines and Australia.

***Leiognathus splendens* (Cuvier, 1829)**

1829. *Equula splendens* Cuvier, *Regene. Animal*. 2 : 212.

1984. *Leiognathus splendens* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 516, fig. 203.

Material examined : Port Blair (South Andaman), 31.7.1993, 1 ex., 78 mm, Coll : D. V. Rao, Reg. No. 3046.

Diagnostic features : D. VIII, 16; A. III, 14; P. 18; V. I. 5. Depth 1.8 in standard length; mouth pointing upwards when protracted; nostrils above orbit; a minute spine above each eye. Body silvery with series of dark spots on upper half; a distinct dark line from angle of mouth to chin and dark spot on opercle; tip of dorsal black with yellow band below.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Family BRAMIDAE

Body compressed, deep and slightly elongate; mouth oblique; maxilla scaly; single dorsal fin; pectoral fin very long; base of dorsal and anal fins very long; ventral fins small; scales hard and large in size; keel on caudal peduncle; margin of gill opening, snout and mandible naked.

Genus *Steinegeria*

Steinegeria rubescens Jordan & Evermann, 1887

1887. *Steinegeria rubescens* Jordan & Evermann, *Proc. U. S. Nat. Mus.*, 9 : 466-467.

1966. *Steinegeria rubescens* : Luther, *J. Mar. biol. Assoc., India*, 8 (2) : 354.

Material examined : Off Port Blair (South Andaman), Sept., 1993, 1 ex., 956 mm, Coll : FSI.

Diagnostic features : D. 31; A. 21; P. 20; V.I. 5. Depth 24.44, head 25.38 in standard length. Mouth oblique; teeth in both jaws small; vomer and tongue edentate; palatine toothed; dorsal fin origin behind head; ventral fin short; pectoral fin elongate reaches to last quarter of anal fin; transverse precaudal grooves well developed; last three lateral line scales over caudal peduncle enlarged and form a strong keel with posterior vertical bony ridge and pointed posteriorly; pectoral and ventral fin with axillary processes; gill rakers 10; scales on the head beginning from post orbital region. Body dark brown; margin of caudal fin broadly white.

Habitat : Found in off shore waters.

Distribution : Indo-Pacific and Atlantic, from coasts of India, Andaman Is., Nicobar Is., Japan to Hawaiian Is. and Mexico.

Family LUTJANIDAE

Body oblong or elongate, rather compressed; mouth moderately large; jaws with canines; vomer and palatines with small conical teeth; maxilla mostly covered by preorbital when mouth is closed; premaxilla with a broad based mid-lateral process; preopercle usually serrate; scales ctenoid; cheek and operculum scaly; maxilla with or without scales; single dorsal fin, some times deeply incised; caudal fin truncate or deeply forked.

Key to Genera

- 1a Base of dorsal and anal fins with scales.....*Lutjanus*.
- 1b Base of dorsal and anal fins scaleless 2
- 2a Pectoral fin short, equal to snout length; a deep groove in front of eye; strong canines in jaws
.....*Apriion*

- 2b Pectoral fin long, falcate, longer than snout length; no groove in front of eyes; no canines in jaws *Aphareus*

Genus *Aphareus* Cuvier, 1830

Aphareus rutilans (Cuvier, 1830)

1830. *Labrus rutilans* Cuvier, *Hist. Nat. Poiss*, p. 6 : 490.

1985. *Aphareus rutilans* : Allen, *Fish. Synop.* (125) 6 : 19, pl. 10, fig. 37.

Material examined : Port Blair (South Andaman), 30.7.1991, 1 ex., 213 mm, Coll : D. V Rao, Reg. No. 1810.

Diagnostic features: D. X, 11; A. III, 8; P. 16; V. I. 5. LI. 72. Depth 3.5, head 2.9 in standard length; eye 4.1 in head, body fusiform; lower jaw projecting; small teeth in jaws; 32 gill rakers on lower arm of 1st arch; caudal fin deeply forked; posterior dorsal and anal fin rays prolonged. Body blue-grey to reddish; fins light yellowish-red, ventral and anal fins whitish; margin of maxilla black.

Habitat : Found around reefs below 10 mt. depth.

Distribution : Indo-Pacific, from Red sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Ryukyu Is., and Australia to Hawaiian Islands.

Genus *Aprion* Valenciennes, 1830

Aprion virescens Valenciennes, 1830

1830. *Aprion virescens* Valenciennes, *Hist. Nat. Poiss.*, 6 : 544.

1985. *Aprion virescens* : Allen, *FAO Fish. Synop.*, (125) 6 : 20, pl. 10, fig. 38.

Material examined : Rutland Is. (South Andaman), 19.10.1993, 1 ex., 332 mm, Coll : D. V. Rao & party, Reg. No. 2432.

Diagnostic features : D. X, 11; A. III, 8; P. 17; V. I. 5. LI. 49. Depth 4.0, head 3.0 in standard length; eye 4.55 in head ; body fusiform; a groove present on snout below nostrils; interorbital naked; two strong canines anteriorly in jaws; pectoral shorter than half length of head; caudal fin deeply forked. Body bluish-grey, fins hyaline.

Habitat : Found around coral reef areas.

Distribution : Indo-Pacific, from Red sea, east coast of Africa to Hawaiian Islands.

Genus *Lutjanus* Bloch, 1790

Key to Species

- 1a Preorbital space narrow, 9.0-16.0 in head; body slender, 3.0 or more in SL; dorsal rays usually 12 2

- 1b Preorbital space wider, below 9.0 in head; body deeper, less than 3.0 in SL; dorsal rays usually 13 or more 3.
- 2a Depth 3.5-3.8 in SL; tongue edentate; dark band from snout to caudal fin base and two pearly spots above lateral line*L. biguttatus*
- 2b Depth below 3.3 in SL; tongue with granular teeth; body silvery with broad yellow stripe along side and narrow yellowish lines along scale rows*L. lutjanus*
- 3a Ground colour yellow with 4-8 longitudinal stripes 4
- 3b Colour not as in 3a 5
- 4a Four stripes on side of body, belly abruptly white; scale rows on cheek 5-6; upper pectoral rays dark*L. kasmira*
- 4b Five stripes on sides of body; scale rows on cheek 10-11; pectoral rays pale*L. quinquelineatus*
- 5a Longitudinal scale rows above lateral line obliquely positioned 6
- 5b Longitudinal scale rows above lateral line horizontal or some rows rising obliquely from below middle part of dorsal fin 18
- 6a Vomerine tooth patch triangular or diamond shaped with a medial posterior extension 7
- 6b Vomerine tooth patch crescentic to triangular without posterior extension 10
- 7a Black spot usually present on upper side 8
- 7b No black spot on upper side, a series of yellow longitudinal lines on side; dark stripe from eye to middle of caudal fin base may be present 9
- 8a Wide gap between temporal scale bands on each side; black spot on upper side situated mainly above lateral line; young specimens with 4-7 yellowish brown stripes on side *L. russelli*
- 8b Little or no gap between temporal scale bands; black spot on upper side situated mostly below lateral line, spot some times elongated; young specimens without stripes*L. fluviflamma*
- 9a Mid-lateral stripe usually broader and darker than other stripes on side; cheek scale rows 7-10*L. vitta*
- 9b Mid-lateral stripe not broader and darker than other stripes; stripes yellow; scale rows on cheek 6-7*L. madras*
- 10a Gill rakers on 1st arch 25-30; scale rows on back rising obliquely both above and below lateral line; caudal fin forked, the lobes rounded; body deep red to grey; fins red or dark brown*L. gibbus*

- 10b Gill rakers on 1st arch 14-23; back scale rows only rising obliquely above lateral line; caudal fin not forked; colour not as in 10a 11
- 11a Preopercular notch distinct and well developed 12
- 11b Preopercular notch indistinct or absent 13
- 12a Dorsal rays 15-16; body depth 2.0-2.4 in SL; lips thick; head with wavy bluish lines; chalky spot present below junction of spinous and soft dorsal on lateral line *L. rivulatus*
- 12b Dorsal rays 13-14; body depth 2.3-2.8 in SL; lips not thick; caudal, distal part of dorsal fin black or dusky *L. fulvus*
- 13a Body with 5 dark stripes; upper most 2 or 3 stripes crossed by dark vertical bars forming a light and dark squares; large dark spot at base of caudal fin *L. decussatus*
- 13b Colour pattern as in 13a 14
- 14a Nostrils in a prominent groove; tongue with patch of teeth; body dark brown above; dorsal and caudal fins dusky; outer portions of anal and ventral fins black *L. bohar*
- 14b Nostrils not in groove; tongue smooth or with granular teeth; colour not as in 14a 15
- 15a Caudal fin with crescentic black marking; body and fins uniform yellowish-tan *L. lunulatus*
- 15b Caudal fin without crescentic black marking; colour of body and fins variable 16
- 16a Dorsal spines X; anal rays usually 8; tongue with fine, granular teeth; colour grey-brown; dorsal and caudal fins dusky with narrow white margin *L. lemniscatus*
- 16b Dorsal spines XI, rarely X, anal rays usually 9; tongue smooth; colour largely reddish 17
- 17a Mouth small; interorbital width 3.5-4.8 in head; some scale rows above lateral line slanting obliquely towards dorsal profile; head profile convex *L. erythropterus*
- 17b Mouth large; interorbital width above 5.0 in head; scale rows below lateral line horizontal; head profile straight or slightly concave *L. malabaricus*
- 18a Vomerine tooth patch triangular with a medial posterior extension; preorbital space narrow, above 7.0 in head; a black spot bisected by the lateral line below posterior part of spinous dorsal fin *L. ehrenbergii*
- 18b Vomerine tooth patch crescentic, no medial extension; preorbital space wider, 4.4-4.9 in head; black spot on back present or absent 19
- 19a A large black spot on upper back present; body yellow with a bronze to silvery sheen; centres of scales with reddish-brown spot *L. johnii*

- 19b No black spot on upper back; back and sides greenish-brown to reddish; scales without spots
 *L. argentimaculatus*

***Lutjanus argentimaculatus* (Forsskal, 1775)**

1775. *Sciaena argentimaculatus* Forsskal, *Descrip. Animal*, 11 : 47.

1985. *Lutjanus argentimaculatus* : Allen, *FAO Fish. Synop.*, (125) 6 : 58, pl. 11.

Material examined : Diglipur (North Andaman), 15.2.1990, 1 ex., 225 mm, Coll : G. C. Rao & party, Reg. No. 1946; Rutland Is. (South Andaman), 19,10,1993, 1 ex., 131 mm, Coll : D. V. Rao & party, Reg. No. 2607.

Diagnostic features : D. X.13; A. III, 8 : P. 17; V. I., 5; LI. 46. Depth 2.6, head 2.45 in standard length; preopercular notch and knob poorly developed; vomerine tooth patch crescentic; scale rows above lateral line parallel; caudal fin emarginate. Body greenish brown, belly silvery; scales with dark centers and white margin; median fins with reddish hue; pectoral and ventral fins dark brown.

Habitat : Found on reefs in deep waters.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Ryukyu Is. and Australia to Line Islands.

***Lutjanus biguttatus* (Valenciennes, 1830)**

1830. *Serranus biguttatus* Valenciennes, *Hist. Nat. Poiss*, 6 : 507.

1985. *Lutjanus biguttatus* : Allen, *FAO Fish. Synop.*, (125) 6 : 62, pl.12, fig. 46.

Material examined : Diglipur (North Andaman), 26.2.1990, 1 ex., 120 mm, Coll : G. C. Rao & party, Reg. No. 1708; Bambooflat (South Andaman), 20.11.1991, 1 ex. 195 mm, Coll : D. V. Rao, Reg. No. 1741. 30.11.1992, 2 exs. 136 & 145 mm, Coll : P. T. Rajan, Reg. No. 2133; Port Blair (South Andaman), 31.7.1993, 1 ex., 138 mm. Coll : D. V. Rao, Reg. No. 2742.

Diagnostic features : D. X., 12; A. III, 8; P.15-16; V. I,5; LI. 52-54. Depth 3.65-3.7, head 2.6-2.7 in standard length, eye 3.6-4.0 in head; snout profile low; preopercle notch poorly developed; vomerine tooth patch triangular with short posterior extension; scale rows above lateral line oblique; caudal fin emarginate. Body dark brown, lower sides and belly yellowish; broad white stripe from below eye to base of caudal fin; two white spots on upper back, one below 6th to 7th dorsal spine and the other below middle of soft-dorsal.

Habitat : Found near coral reef areas.

Distribution : Indo-Australian Archipelago, from Maldives, coasts of India, Andaman Is., Sri Lanka to Philippines, Palau to Solomon Island.

***Lutjanus bohar* (Forsskal, 1775)**

1775. *Sciaena bohar* Forsskal, *Descript. Animal*, 11 : 46.

1985. *Lutjanus bohar* : Allen, *FAO Fish. Synop.*, (125) 6 : 64, pl. 1, fig. 48.

Material examined : Diglipur (North Andaman), 15.2.1990, 1 ex., 225 mm, Coll : G. C. Rao & party, Reg. No. 1947; Havelock Is. (Ritchie's Archipelago), 20.11.1991, 2 exs., 240 mm, Coll : D. V. Rao & party, Reg. No. 1740.

Diagnostic features : D. X.13; A. III, 8 : P. 17; V. I., 5; LI. 48-49. Depth 2.53-2.3, head 2.57-2.7 in standard length; eye 4.4-4.5 in head; snout somewhat pointed; nostrils in deep groove; inter-orbital flat; vomerine tooth patch crescentic; preopercular notch poorly developed; scale rows above lateral line oblique. Body reddish-brown above, lower sides and belly reddish; all fins dusky except pectoral; pectoral fin pink, the dorsal edge dark.

Habitat : Found around coral reefs and protected lagoons.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, coasts of India, Andaman Is., Sri Lanka to Ryukyu Is. and Australia to Tahiti Island.

***Lutjanus decussatus* (Cuvier, 1828)**

(Fig. 163)

1828. *Mesoprion decussatus* Cuvier, *Hist. Nat. Poiss*, 2 : 487.

1985. *Lutjanus decussatus* : Allen, *FAO Fish. Synop.*, (125) 6 : 73, pl.13, fig. 52.

Material examined : Diglipur (North Andaman), 15.2.1990, 1 ex., 240 mm, Coll : G. C. Rao & party, Reg. No. 1945; Port Blair (South Andaman), 30.7.1991, 1 ex. 266 mm, Coll : D. V. Rao, Reg. No. 1655; Bombooflat (South Andaman), 30.11.1992, 1 ex. 144 mm, Coll : P. T. Rajan, Reg. No. 2134.

Diagnostic features : D. X., 13; A. III, 8; P.16; V. I, 5; LI. 51-52. Depth 2.9-3.1, head 2.47-2.5 in standard length, eye 4.5-4.6 in head; preopercular notch poorly developed; vomerine tooth patch crescentic; scale rows above lateral line oblique; caudal fin emarginate. Body whitish silvery with 5 dark brown bars, upper three stripes crossed by dark vertical bars forming a net work of light and dark squares; a large black spot on caudal fin base; dorsal and caudal fins dusky red, other fins yellowish-white.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from east coast of India, Andaman Is., Sri Lanka to Japan and Australia.

***Lutjanus erythropterus* Bloch, 1790**

1790. *Lutjanus erythropterus* Bloch, *Nat. Ausland Fische.*, 4 : 115.

1985. *Lutjanus erythropterus* : Allen, *FAO Fish. Synop.*, Snappers of the world., (125) 6 : 78, pl. 14.

Material examined : Port Blair (South Andaman), 31.7.1993, 1 ex., 85 mm, Coll : D. V. Rao, Reg. No. 2740.

Diagnostic features : D. X, 14; A. III, 8; P. 16; V. I, 5; LI. 49. Depth 2.1, head 2.5 in standard length, dorsal profile of head sloped; vomerine tooth patch crescentic without posterior extension; tongue without teeth; scale rows on back rising obliquely above lateral line. Juvelines light pink with a broad oblique black band from mouth to dorsal fin origin and a large round black spot at base of caudal fin; narrow red stripe along scale rows.

Habitat : Found around coral reefs.

Distribution : Indo-West Pacific, from Gulf of Oman, coasts of India, Andaman Is. to new Guinea and to Japan.

***Lutjanus ehrenbergii* Peters, 1869**

1869. *Lutjanus ehrenbergii* Peters, *Montash. Akad. Wiss. Berlin*, p. 704.

1986. *Lutjanus ehrenbergii*: Allen, in Smith & Heemstra, *Smith's Sea Fishes*, p. 574, pl. 54.

Material examined : Diglipur (North Andaman), 15.2.1990, 1 ex., 151 mm, Coll : G. C. Rao & party, Reg. No. 2180.

Diagnostic feature : D. X, 13; A. III, 8; P. 16; V. I, 5; LI. 46. Depth 2.8, head 2.65 in standard length, vomerine tooth patch triangular with small posterior extension; tongue with a patch of teeth; caudal fin emarginate; scale rows on back parallel to lateral line. Body dark brown, lower sides and belly whitish-silvery, 4 narrow yellow stripes on sides below lateral line; prominent black spot on back below posterior part of spinous dorsal fin.

Habitat : Found in coral reef areas and creeks.

Distribution : Indo-West Pacific, from east coast of Africa to Solomon and Mariana Islands.

***Lutjanus fluviflamma* (Forsskal, 1775)**

(Fig. 164)

1775. *Sciaena fluviflamma* Forsskal, *Descript. Animal.* 11 : 45.

1985. *Lutjanus fluviflamma* : Allen, *FAO Fish. Synop.*, (125) 6 : 80, pl. 14, fig. 56.

Material examined : Mayabunder (North Andaman), 17.8.1991, 1 ex., 154 mm, Coll : K. Chandra & party, Reg. No. 1907; Havelock Is. (Archipelago), 22.11.1991, 1 ex., 210 mm, Coll : D. V. Rao & party, Reg. No. 2178; Port Blair (South Andaman), 31.7.1993, 2 exs., 37 & 75 mm, Coll : D. V. Rao, Reg. No. 2739.

Diagnostic features : D. X, 13; A. III, 8; P. 15-16; V. I, 5; LI. 48-49. Depth 2.7-2.85, head 2.55-2.65 in standard length, eye 4.0-4.2 in head; preopercular knob and notch poorly developed; vomerine tooth patch triangular with a medial posterior extension; tongue with a patch of teeth; caudal fin slightly emarginate. Body dark brown on head and back, light brown on sides and belly

yellow; sides of body below lateral line with yellow stripes; an elongate black spot at level of lateral line below base of soft dorsal fin; all fins yellowish.

Habitat : Found around coral reef and rubble areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Ryukyu Is., and Australia to Line Islands.

***Lutjanus fulvus* (Schneider, 1801)**

(Fig. 165)

1801. *Holocentrus fulvus* Schneider, *Syst. Ichth.*, p. 318.

1985. *Lutjanus fulvus* : Allen, *FAO Fish. Synip.*, (125) 6 : 82.

Material examined : Mayabunder (North Andaman), 17.8.1991, 1 ex., 205 mm, Coll : K. Chandra & party, Reg. No. 1686; Port Blair (South Andaman), 31.7.1993, 1 ex., 210 mm, Coll : D. V. Rao, Reg. No. 2741.

Diagnostic features : D. X, 14; A. III, 8; P. 16; V. I, 5; LI. 51. Depth 2.37-2.4, head 2.5 in standard length, eye 3.8 in head; dorsal profile of head steeply sloped; vomerine tooth patch crescentic; preopercular notch and knob well developed; caudal fin emarginate. Body brownish yellow with a series of narrow yellow horizontal lines on sides below lateral line; anterior part of head brownish; underside of head and belly whitish; dorsal fin brownish with a black band near margin, more broader on soft dorsal; caudal fin black, margin of dorsal and caudal fins white.

Habitat : Found around reef areas in shallow waters..

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Palau Island.

***Lutjanus gibbus* (Forsskal, 1775)**

(Fig. 166)

1775. *Sciaena gibbus* Forsskal, *Descript. Animal.*, 9 : 46.

1985. *Lutjanus gibbus*: Allen, *FAO Fish. Synop.*, (125) 6 : 84, pl. 15, fig. 59.

Material examined : Mayabunder (North Andaman), 15.8.1991, 4 exs., 200-250 mm, Coll : K. Chandra & party, Reg. No. 1691; Bambooflat (South Andaman) 30.11.1992, 1 ex. 80 mm, Coll : P. T. Rajan, Reg. No. 2135.

Diagnostic features : D. X, 14; A. III, 8; P. 17; V. I, 5; LI. 58-59. Depth 2.24-2.7, head 2.29-2.7 in standard length, eye 3.0-4.7 in head; dorsal profile of head steeply sloped and concave; tongue edentate; preopercular notch and knob well developed; posterior profile of dorsal and anal fins pointed; caudal fin forked. Body red, more dark on back and silvery-red below; eye, base of pectoral and its axil orange; fins reddish brown; soft dorsal, anal and caudal fin margins white.

Habitat : Found on coral reefs below 5 mt. depth.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan, and Australia to Tuamotu Islands.

***Lutjanus johnii* (Bloch, 1792)**

1792. *Anthias johnii* Bloch, *Nat. Ausland Fische.*, 6 : 113.

1985. *Lutjanus johnii* : Allen, *FAO Fish. Synop.*, (125) 6 : 94.

Material examined : Panigat (South Andaman), 24.4.1991., 2 exs., 64 & 195 mm, Coll : Kamla Devi & party, Reg. No. 1719; Diglipur (North Andaman), 26.6.1990, 2 exs., 160 & 175 mm, Coll : G. C. Rao & party, Reg. No. 2179; Chidiyatapu (South Andaman), 30.7.1987, 2 exs., 87 & 96 mm, Coll : H. S. Mehta, Reg. No. 1892.

Diagnostic features : D. X, 14; A. III, 8; P. 16; V. I, 5. Depth 2.75, head 2.45 in standard length, dorsal profile of head deeply sloped; vomerine tooth patch crescentic without a medial extension; tongue with a patch of granular teeth. Body yellow with silvery sheen, silvery white on belly; centre of each scale with reddish-brown spots giving an appearance of series of horizontal lines; a round black spot longer than eye above lateral line, below anterior soft dorsal rays.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is., to Japan and Fiji Island.

***Lutjanus kasmira* (Forsskal, 1775)**

1775. *Sciaena kasmira* Forsskal, *Descript. Animal.*, 11: 46.

1985. *Lutjanus kasmira* : Allen, *FAO Fish. Synop.*, (125) 6 : 96, pl. 17.

Material examined : Port Blair (South Andaman), 30.7.1991, 3 exs. 146 mm, Coll : D. V. Rao, Reg. No. 2181; 26.8.1994, 2 exs. 218 mm, Coll : P. T. Rajan, Reg. No. 2702.

Diagnostic features : D. X, 14; A. III, 8; P. 15-16; V. I, 5; LI.49-50. Depth 2.7-2.8, head 2.45-2.62 in standard length, eye 3.7-3.8 in head; pre-opercular notch well developed; vomerine tooth patch crescentic; tongue edentate. Body yellow, under side of head and belly white; four bright black edged blue stripes along side of head and body; all fins yellow; a large black spot present on lateral line below anterior soft dorsal rays.

Habitat : Found around coral reefs and shallow lagoons.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and New Guinea, Australia to Tuamotu Islands.

***Lutjanus lemniscatus* (Valenciennes, 1828)**

1828. *Serranus lemniscatus* Valenciennes, *Hist. Nat. Poiss.*, 2 : 240.

1993. *Lutjanus lemniscatus*: Rao *et. al.* *J. Andaman Sci. Assoc.*, 9 (1&2) : 56.

Material examined : Wrightmyo (South Andaman) 4.2.1990, 2 exs., 247 mm, Coll : G. C. Rao & party, Reg. No. 2051.

Diagnostic features : D. X, 13; A. III, 8; P.16; V I, 5; LI. 56. Depth 2.8, head 2.7 in standard length, eye 4.8 in head; snout profile slightly concave; vomerine tooth patch crescentic; tongue with a patch of granular teeth; preopercular notch and knob poorly developed. Body dusky-brown, sides reddish-brown, under side of head and belly white; dorsal and caudal fins brownish black with narrow white margin; other fins white.

Habitat : Found near silty-coral rubble areas.

Distribution : Indo-West Pacific, from east coast of India, Andaman Is., Sri Lanka to Philippines and Australia, New Guinea.

***Lutjanus lunulatus* (Park, 1797)**

1797. *Perca lunulata* Park, *Trans. Linn. Soc., London.*, 3 : 37.

1985. *Lutjanus lunulatus* : Allen, *FAO Fish. Synop.*, (125) 6 : 98, pl. 17.

Material examined : Mayabunder (North Andaman), 17.8.1991, 3 exs., 125-127 mm, Coll : K. Chandra & party, Reg. No. 1685.

Diagnostic features : D. X, 13; A. III, 8; P.16; V. I, 5; LI. 49. Depth 2.55-2.6, head 2.6-2.68 in standard length, eye 4.0 in head. Vomerine tooth patch crescentic; tongue with patch of teeth; preopercular notch well developed; caudal fin emarginate. Back and upper sides of body brownish red, ventral side of head and body yellowish-white; dorsal fin light red; other fins light yellow; caudal fin with broad crescentic black band.

Habitat : Found around coral reefs in deep waters.

Distribution : Indo-West Pacific, from Tanzania, Pakistan, costs of India, Andaman Is. Sri Lanka to Philippines.

***Lutjanus lutjanus* Bloch, 1790**

1790. *Lutjanus lutjanus* Bloch, *Nat. Ausland. Fische.*, 4 : 107.

1985. *Lutjanus lutjanus* Allen, *FAO Fish. Synop.*, (125) 6 : 99, pl. 18.

Material examined : Bambooflat (South Andaman), 26.11.1992, 1 ex., 137 mm, Coll : P. T. Rajan, Reg. No. 2153.

Diagnostic features : D. XI., 12; A. III, 8; P. 16; V. I, 5. L1 49. Depth 3.15, head 2.7 in standard length, Body fusiform and slender; dorsal profile of head gently sloped; no preopercle notch; vomerine tooth patch triangular with medial extension; tongue with a patch of granular teeth; scale rows rising obliquely above lateral line. Body brown, sides silvery-white; horizontal yellow lines on flanks, a broad yellow stripe from snout through eye to caudal base; fins pale yellow.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from east coast of Africa to Solomon Islands and Australia to Japan.

***Lutjanus madras* (Valenciennes, 1831)**

1831. *Mesoprion madras* Valenciennes, *Hist. Nat. Poiss.*, 7 : 466.

1985. *Lutjanus mardras* : Allen, *FAO Fish. Synop.* (125) 6 : 100, pl. 18, fig. 67.

Material examined : North reef Is. (North Andaman), 26.3.1993, 2 exs. 92 mm. Coll : G. C. Rao & party, Reg. No. 2737; Port Blair (South Andaman), 31.3.1993, 1 ex., 83 mm, Coll : D. V. Rao, Reg. No. 2736.

Diagnostic features : D. X, 13; A. III, 8; P. 16; V. I. 5; LI. 53-55. Depth 2.8-2.9, head 2.5-2.6 in standard length, eye 3.4-3.8 in head. Body slender and fusiform; vomerine tooth patch triangular with median posterior extension; tongue dentate; preopercular notch poorly developed. Body brownish above, sides whitish with fine yellow horizontal lines along scale rows; brownish oblique lines above lateral line; ventral whitish, other fins yellow.

Habitat : Found around reef and rocky areas below 3mt depth.

Distribution : Indo-West Pacific, from Seychelles, Lakshadweep, coasts of India and Andaman Is to South China Sea, Philippines, and New Guinea.

***Lutjanus malabaricus* (Schneider, 1801)**

1801. *Sparus malabaricus* Schneider, *Syst. Ichth.*, p. 278.

1985. *Lutjanus malabaricus* Allen, *FAO Fish. Synip.*, 6 (125) : 102.

Material examined : Hut Bay (Little Andaman). 22.9.1990, 1 ex., 103 mm, Coll : K. V. Raman & party, Reg. No. 1862; Panighat (South Andaman), 24.4.1991, 1 ex., 98 mm, Coll : Kamla Devi, Reg. No. 1718.

Diagnostic features : D. X, 14; A. III, 8; P. 16; V. I, 5; LI. 58. Depth 2.5-2.6, head 2.5 in standard length, Dorsal profile of head steeply sloped; preopercular notch and knob poorly developed; vomerine tooth patch crescentic without a median extension; tongue edentate; scale rows above lateral line rising obliquely. Body reddish orange, lighter on lower parts; all fins reddish.

Habitat : Found around reefs in shallow waters.

Distribution : Indo-West Pacific, from Persian Gulf and coasts of India to Japan, Australia to Fiji.

***Lutjanus quinquelineatus* (Bloch, 1790)**

1790. *Holocentrus quinquelineatus* Bloch. *Nat. Ausland Fische.*, 4 : 48.

1985. *Lutjanus quinquelineatus* : Allen, *FAO Fish. Synop.*, 6 (125) : 111, pl. 19, fig. 73.

Material examined : Diglipur (North Andaman), 17.2.1990, 2 exs., 163 mm, Coll : G. C. Rao & party, Reg. No. 2324; Port Blair (South Andaman), 3 exs., 210-219 mm, Coll : P. T. Rajan, Reg. No. 2701.

Diagnostic features : D. X, 13-14; A. III, 8; P. 16; V. I, 5. Depth 2.6-2.8, head 2.63-2.7 in standard length, eye 3.4 in head. Dorsal profile of head steeply sloped; vomerine tooth patch crescentic; tongue edentate; preopercular notch well developed. Body bright yellow, upper part of head brownish; five blue stripes on sides; all fins yellow; a round black blotch on lateral line below anterior soft dorsal level.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is, to Japan and Australia to Fiji.

***Lutjanus rivulatus* (Cuvier, 1828)**

1828. *Diacope rivulata* Cuvier, *Hist. Nat. Poiss*, 2 : 414.

1985. *Lutjanus rivulatus* : Allen, *FAO Fish. Synop.*, 6 (125) : 112.

Material examined : Rangat Bay (Middle Andaman), 19.8.1991, 2 exs., 225 mm, Coll : K. Chandra & party, Reg. No. 1707; Port Blair (South Andaman), 31.7.1993, 1 ex., 50 mm, Coll : D.V. Rao, Reg. No. 2738.

Diagnostic features : D. X, 15; A. III, 8 P. 17; V. I., 5; LI. 48. Depth 2.15, head 2.4 in standard length, eye 5.0 in head; body deep, dorsal profile of head steeply sloped; vomerine tooth patch crescentic; posterior profile of anal fin pointed; preopercular notch moderately developed. Body reddish brown; each scale with one or two bluish spots; head with fine wavy blue lines; lips whitish; all fins yellow with dusky markings; caudal fin greyish with yellow margin.

Habitat : Found in inshore reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India to Japan and Australia to Tahiti Island.

***Lutjanus russelli* (Bleeker, 1849)**

1849. *Mesoprion russelli* Bleeker, *Verh. Batav. Genootsh (Percoid)*, 22 : 41.

1985. *Lutjanus russelli* : Allen *FAO Fish. Synop.* 6 (125) : 113, pl. 20.

Material examined : Hut Bay (Little Andaman), 30.7.1987, 9 exs. 65-104 mm, Coll : H. S. Mehta & party, Reg. No. 2947; Port Blair (South Andaman), 30.7.1991, 2 exs. 136 & 155 mm, Coll : D. V. Rao, Reg. No. 2331; Rutland Is. (South Andaman), 25.1.1994, 1 ex., 237 mm, Coll : D. V. Rao & party, Reg. No. 2604.

Diagnostic features : D. X. 14; A. III, 8 P. 16; V. I., 5; LI.48-50. Depth 2.48-2.7, head 2.45-2.55, in standard length, eye 3.5-4.9 in head; vomerine tooth patch triangular with a posterior medial extension; tongue with a patch of teeth; preopercular notch shallow. Body brownish yellow, lower

sides and belly yellowish white; 6-7 narrow golden horizontal stripes on sides; a black blotch below anterior dorsal rays, above lateral line; all fins yellowish; caudal fin dusky.

Habitat : Found around inshore coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Japan and Australia to Fiji.

***Lutjanus vitta* (Quoy & Gaimard, 1824)**

(Fig. 167)

1824. *Serranus vittata* Quoy & Gaimard, *Voy. Urani. Zool.*, p. 58.

1985. *Lutjanus vittata* : Allen *FAO Fish. Synop.* 6 (125) : 123, pl. 22.

Material examined : Havelock Is. (Ritchie's Archipelago), 22.11.1991, 2 exs., 210 & 235 mm, Coll : D. V. Rao, Reg. No. 1885.

Diagnostic features : D. X, 12; A. III, 8 P. 16; V. I, 5; LI. 55. Depth 2.76 in standard length, dorsal profile of head moderately sloped; preopercular notch and knob poorly developed; vomerine tooth patch triangular with a median extension; tongue dentate; caudal fin emarginate; scale rows on back rising obliquely above lateral line. Body brown, lower sides and belly whitish; narrow longitudinal brown lines along scale rows on sides; those above lateral line slanted towards dorsal fin base; dark brown stripe from eye to upper half of caudal peduncle; all fins yellow, except ventrals.

Habitat : Found around coral reefs in groups.

Distribution : Indo-West Pacific, from coasts of India to Japan and Australia to Gilbert Island.

Family CAESIONIDAE

Body rounded, fusiform, slightly elongated; mouth small with a row of fine teeth; upper jaw protractile; palate edentate; one or two distinct bony processes on premaxilla; distinct band of scales on the upper head (supra-temporal band); dorsal and anal fins with or without scales; caudal fin forked.

Key to Genera

- 1a A single post maxillary process; posterior end of maxilla blunt.....***Caesio***
- 1b Two post maxillary processes; posterior end of maxilla tapered**2**
- 2a Dorsal and anal fins scaled; premaxilla with small conical teeth***Pterocaesio***
- 2b Dorsal and anal fins without scales; premaxilla with-out teeth**3**
- 3a 14-15 rays; anal fin 11-13 rays; pectoral with 20-22 rays***Gymnoaesio***
- 3b Dorsal with 12-15 spines, 8-11 rays; anal fin 9-11 rays; pectoral with 16-19 rays
.....***Dipterygonotus***

Genus *Caesio* Lacepede, 1801

Key to Species

- 1a Supra-temporal band of scales confluent at dorsal midline*C. cuning*
- 1b Supra-temporal band of scales interrupted at dorsal midline by thin scaleless zone 2
- 2a Tips of caudal lobes with a small blackish blotch; upper sides of body bluish*C. lunaris*
- 2b Tips of caudal lobes not black; body colour not as in 2a 3
- 3a Caudal lobes with a black median streak; an yellow stripe above lateral line
.....*C. caeruleaurea*
- 3b Caudal lobes without black streak; no stripe above lateral line; upper third of body bright
yellow*C. xanthonota*

Caesio caeruleaurea Lacepede, 1801

(Fig. 168)

1801. *Caesio caeruleaurea* Lacepede, *Hist. Nat. Poiss.* 3 : 85.

1988. *Caesio caeruleaurea* : Carpenter, *FAO Fish. Synop.* 8 (125) : 35.

Material examined : Panigat (South Andaman), 24.2.1991, 1 ex, 154 mm, Coll : Kamla Devi Reg. No. 1977; Mayabunder (North Andaman), 9.1.1992, 3 exs., 165-180 mm, Coll : D. V. Rao, Reg. No. 1814; Port Blair (South Andaman), 27.8.1992, 2 exs., 192 mm, Coll : Kamla Devi, Reg. No. 2008; Hut Bay (Little Andaman), 27.10.1991, 1 ex., 172 mm, Coll : P. T. Rajan, Reg. No. 1976.

Diagnostic features : D. X, 15; A. III, 12 P. 20-21; V. I, 5; LI. 59-62. Ltr. 9/16. Post maxillary process single; peduncular scale rows: upper 11, lower 15; 22-24 predorsal scales; dorsal and anal fins scaled; supratemporal bands of scales interrupted at dorsal midline. Body bluish, lower sides bluish-white; an yellow stripe bordered by a white stripe above lateral line; caudal lobes with a black median streak; dorsal fin light blue, edge black; other fins white; axil and upper base of pectoral black.

Habitat : Found around coral reef areas in groups.

Distribution : Indo-West Pacific, from Red Sea, east coasts of Africa to Japan and Australia to Samoa Island.

Caesio cuning (Bloch, 1791)

1791. *Sparus cuning* Bloch, *Nat. Ausland Fische.*, 5 : 31; pl. 263.

1988. *Caesio cuning* : Carpenter, *FAO Fish. Synop.*, 8 (125) : 37, pl. 1, fig. 44a & b.

Material examined : Mayabunder (North Andaman), 10.1.1992, 2 exs., 170 mm, Coll : D. V. Rao, Reg. No. 2375; North Bay (South Andaman), 22.8.1992, 1 ex., 203 mm, Coll : P. T. Rajan, Reg. No. 1975; Bambooflat (South Andaman), 26.11.1992, 1 ex., 225 mm, Coll : P. T. Rajan, Reg. No. 2152.

Diagnostic features : D. X, 15; A. III, 11 P. 18; V. I, 5; LI. 47-50. Ltr. 9/15-16. Post maxillary process single; peduncular scale rows: upper 9, lower 13; scale rows on cheek 5; 21-23 predorsal scales; supratemporal band of scale rows confluent at dorsal midline; dorsal and anal fins scaled. Body greenish-blue; lower sides and belly pinkish white; caudal peduncle and fin yellowish; dorsal fin yellowish-blue; other fins white; axil and upper base of pectoral fin black.

Habitat : Found over rocky and reef areas below 6mt depth.

Distribution : Eastern Indian Ocean to Western Pacific, from east coast of India to Australia.

***Caesio lunaris* Cuvier, 1830**

1830. *Caesio lunaris* Cuvier, *Hist. Nat. Poiss.*, 6 : 441.

1993. *Caesio lunaris* : Rao, et al, *J. Andaman Sci Assoc.*, 9 (1 & 2) : 52.

Material examined : Diglipur (North Andaman), 19.2.1990, 1 ex., 266 mm, Coll : G. C. Rao & party, Reg. No. 1991.

Diagnostic features : D. X, 14; A. III, 11 P. 20; V. I., 5; LI. 53. Ltr. 8 + 1 + 8. Body fairly deep; post maxillary process single; supratemporal band of scales interrupted at dorsal midline; 21 predorsal scales; dorsal and anal fins scaled. Body bluish, belly paler; tip of caudal lobes, axil of pectoral fins black; ventral, anal and caudal fins white to pale blue.

Habitat : Found in reef areas.

Distribution : Indo-Pacific, from east coast of Africa to coasts of India, Andaman Is. , Sri Lanka to Ryukyu Is., and New Guinea to Solomon Island.

***Caesio xanthonota* (Bleeker, 1845)**

1845. *Caesio xanthonotus* Bleeker, *Nat. Tijds. Ned. Indie.*, 4 : 466.

1993. *Caesio xanthonota* : Rao, et. al. *J. Andaman Sci Assoc.*, 9 (1 & 2) : 52.

Material examined : Port Blair (South Andaman), 27.8.1992, 1 ex., 270 mm, Coll : Kamla Devi, Reg. No. 1992.

Diagnostic features : D. X, 14; A. III, 12 P. 21; V. I., 5; LI. 59. Ltr. 10 + 1 + 18. Single post maxillary process; 4 scale rows on cheek; 21 predorsal scales; dorsal and anal fins scaled; supratemporal scales interrupted at dorsal midline of narrow scaleless zone. Upper third of body yellowish, sides of body bluish and lower sides white; axil and upper base of pectoral black; dorsal and caudal fins yellow; other fins white.

Habitat : Found around coral reefs.

Distribution : Indian Ocean, from Zanzibar to coasts of India, Andaman Is., Christmas and Indonesia.

Genus *Dipterygonotus* Bleeker, 1849

Dipterygonotus balteatus (Valenciennes, 1830)

1993. *Dipterygonotus balteatus* : Rao, et al. *Environment & Ecology*, 11 (4) : 883.

Diagnostic features : D. X IV, 9; A. III, 9, P. 18; V. I, 5; LI. 76. Ltr. 10 + 1 + 16. Body slender, two post maxillary processes; palatines edentate; caudal peduncular scale rows: upper 13, lower 16; cheeks with 6 scale rows; 32 predorsal rows; dorsal and anal fins without scales. Body brownish above, silvery white below; a thin yellowish black stripe of one scale width above lateral line from orbit to caudal, above this two interrupted stripes of the same colour; all fins light pinkish; axil of pectoral fin black.

Habitat : Found near shallow reefs in coastal waters.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is., Sri Lanka to South China Sea and New Guinea to Samoa Island.

Genus *Gymnoaesio* Bleeker, 1876

Gymnoaesio gymnoptera (Bleeker, 1856)

1856. *Caesio gymnopterus* Bleeker, *Nat. Tijd. Ned. Indie.*, 10 : 372.

1993. *Gymnoaesio gymnoptera* : Rao, et al. *J. Andaman Sci. Assoc.* 9 (1 & 2) : 53.

Material examined : Port Blair (South Andaman), 5.9.1992, 4 exs. 130-155 mm, Coll : P. T. Rajan, Reg. No. 2004.

Diagnostic features : D. X, 15; A. III, 12 P. 20-21; V. I, 5; LI. 69-70; Ltr. 8 + 1 + 13. Body slender, two post maxillary processes; palatines and premaxilla edentate; 23-24 predorsal scales; dorsal and anal fins without scales. Body bluish green, silvery white ventrally; an yellow stripe, about one scale width, along lateral line; axil of pectoral fin black; caudal fin dusky, tips of lobes black.

Habitat : Found in reef areas in large groups.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Fiji.

Genus *Pterocaesio* Bleeker, 1876

Key to Species

- 1a Dorsal XI—XII, 9-12; a black streak in each caudal lobe*P. tile*
- 1b Dorsal X—XI, 14-16; tip of caudal lobes with a black blotch 2
- 2a Upper caudal peduncular scales 11; Ltr. 8-9+13-17; pectoral rays 17-21; sides of body with or without stripes 3

- 2b Upper caudal peduncular scales 12-13; Ltr. 9-11+16-18; pectoral rays 21 or above; single yellow stripe along lateral line.....*P. tessellata*
- 3a Body without stripes on sides; body reddish or greenish blue*P. pisang*
- 3b Two yellow stripes on side, the first along dorsal midline and the second below lateral line*P. chrysozona*

***Pterocaesio chrysozona* (Cuvier, 1830)**

1830. *Caesio chrysozona* Cuvier, *Hist. Nat. Poiss.*, 6 : 440.

1988. *Pterocaesio chrysozona* : Carpenter, *FAO Fish. Synop.*, 98 (125) : 52, pl. 4, fig. 54a, b.

Material examined : North Bay (South Andaman), 22.8.1992, 1 ex., 162 mm, Coll : P. T. Rajan, Reg. No. 1981; Port Blair (South Andaman), 5.9.1992, 2 exs., 146 & 153 mm, Coll : P. T. Rajan, Reg. No. 2007; Panighat (South Andaman), 23.9.1992, 2 exs., 150 & 175 mm, Coll : P. T. Rajan, Reg. No. 2003.

Diagnostic features : D. X, 15; A. III, 12; P. 17-19; V. I, 5; LI. 65-68. Ltr. 8/14-15. Two post maxillary processes; predorsal scales 23-25; dorsal and anal fins scaled. Body bluish-brown above, whitish pink below; a bright yellow band below lateral line from eye to base of caudal fin; all fins white; axil of pectoral black; tip of caudal fin lobes black.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to South China Sea and New Guinea and Australia.

***Pterocaesio pisang* (Bleeker, 1853)**

(Fig. 169)

1853. *Caesio pisang* Bleeker, *Nat. Tijds. Ned. Indie.*, 4 : 113.

1993. *Pterocaesio pisang* : Rao, *et al. Environment & Ecology*, 11 (4) : 882

Diagnostic features : D. X, 15; A. III, 12, P. 19; V. I., 5; LI. 66. Ltr. 9/14. Body elongate and compressed; two post-maxillary processes; vomer and palatines dentate; 4 scale rows on cheek; 23 predorsal scales; dorsal and anal fins scaled; caudal peduncular scale rows: upper 11, lower 15. Body dark reddish silvery, paler ventrally; lateral line scales darker; axil of pectoral fin black; tip of caudal fin lobes dark red to black.

Habitat : Found around coral reef areas in shallow waters.

Distribution : Indo-West Pacific, from Zanzibar to coasts of India, Andaman Is., Sri Lanka to Fiji.

***Pterocaesio tessellata* Carpenter, 1987**

1987. *Pterocaesio tessellata* Carpenter, *Indo-Pacific Fishes*, (15) : 47.

1993. *Pterocaesio tessellata* : Rao, *et al. J. Andaman Sci. Assoc.*, 9 (1 & 2) : 53.

Material examined : Port Blair (South Andaman), 5.9.1992, 2 exs., 135 mm, Coll : P. T. Rajan, Reg. No. 1994.

Diagnostic features : D. X, 15; A. III, 12, P. 21; V. I., 5; LI. 70. Ltr. 9/16. Two post maxillary processes; palatines edentate; 5 scale rows on cheek; 29 predorsal scales; dorsal and anal fins scaled; supra-temporal band of scales confluent at dorsal mid-line. Body light bluish green, whitish to pink below; a longitudinal yellow stripe about one scale width covering lateral line; pectoral, ventral and anal fins pinkish; axil and pectoral fin black; dorsal fin light bluish green; caudal fin dusky, tip of lobes black.

Habitat : Found in reef areas.

Distribution : Eastern Indian Ocean, from east coast of India, Andaman Is., Sri Lanka to New Hebrides.

Pterocaesio tile (Cuvier, 1830)

1830. *Caesio tile* Cuvier, *Hist. Nat. Poiss.*, 6 : 428.

1993. *Pterocaesio tile*: Rao, et al. *J. Andaman Sci. Assoc.* 9 (1 & 2) 52.

Material examined : Bambooflat (South Andaman), 6.7.1992, 1 ex., 157 mm, Coll: P. T. Rajan, Reg. No. 1993; Mayabunder (North Andaman), 14.8.1991, 2 exs., 142 mm, Coll : K. Chandra & party, Reg. No. 2350.

Diagnostic features : D. XI, 19; A. III, 13 P. 24; V. I., 5; LI. 71. Ltr. 7/16. Two post maxillary processes; 4 scale rows on cheek; 29 predorsal scales; dorsal and anal fins scaled. Scales above lateral line bluish-green; a black stripe about one scale row width along lateral line; below the stripe a brilliant blue zone; lower third of body white to pinkish; axil and upper base of pectoral black; dorsal light pinkish; caudal with black streak in each lobe, the upper streak continuous with the lateral stripe.

Habitat : Found around coral reef areas.

Distribution : Indo-Pacific, from Zanzibar to coasts of India, Andaman Is., Sri Lanka to Ryukyu Is., and Mariana to Tuamotu.

Family GERREIDAE

Small to moderate sized fishes; body compressed and oblong; mouth greatly protrusile, pointing downward when protracted; teeth villiform in both jaws; palatines edentate; scales large, cycloid; cheek and operculum scaly; gill membranes free from isthmus; base of dorsal and anal fins sheathed by a row of scales; pectoral fin long and pointed; caudal fin deeply forked.

Genus *Gerres* Quoy & Gaimard, 1824

Key to Species

- 1a Second dorsal spine much longer than head and greatly elongate*G. filamentosus*
- 1b Second dorsal spine usually shorter than head; not produced into a filament 2

- 2a Body depth 3.0—3.5 in SL; $5\frac{1}{2}$ scale rows between lateral line and base of 5th dorsal spine ***G. oblongus***
- 2b Body depth 2.0-3.0 in standard length 3
- 3a Depth 2.0-2.3 in SL; 6 scale rows between lateral line and base of 5th dorsal spine ***G. abbreviatus***
- 3b Depth 2.5-3.0 in standard length 4
- 4a Scale rows $3\frac{1}{2}$ between lateral line and base of 5th dorsal spine; pectoral fin long, extending beyond anal origin; fin spines slender ***G. oyena***
- 4b Scale rows 6-7 between lateral line and base of 5th dorsal spine; pectorals reaching to anal origin; fin spines strong and broad ***G. poeti***

***Gerres filamentosus* Cuvier, 1829**

1829. *Gerres filamentosus* Cuvier, *Regne. Animal*, ed. 2, 2 : 188.

1986. *Gerres filamentosus* : Woodland, in Smith & Heemstra, *Smith's Sea Fishes*, p. 608, fig. 194.2.

Material examined : Car Nicobar Is., 10.9.1988, 1 ex., 95 mm, Coll : H. S. Mehta & party, Reg. No. 1841; Wrightmyo (South Andaman), 4.2.1989, 2 exs., 100 mm, Coll : G. C. Rao & party, Reg. No. 1775; Mayabunder (North Andaman), 15.8.1991, 1 ex., 104 mm, Coll : K. Chandra & party, Reg. No. 1825; Port Blair (South Andaman) 14.11.1992, 2 exs., 134 & 162 mm, Coll : D. V. Rao, Reg. No. 2330; Nancowry Is. (Nicobar Group), 13.2.1993, 1 ex., 287 mm, Coll : D.V. Rao & party, Reg. No. 2326.

Diagnostic features : D. IX, 10; A. III, 7; P. 16; V. I., 5; LI. 44-46. Depth 2.0-2.4, head 2.95-3.0 in standard length; 2nd dorsal spine longer than head and filamentous; 5 scale rows between lateral line and 5th dorsal spine. Body silvery with 8-10 vertical series of ovoid bluish spots on sides.

Habitat : Found in large number in tidal creeks.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Australia and northwards to Japan.

***Gerres abbreviatus* (Bleeker, 1850)**

1850. *Gerres abbreviatus* Bleeker, *Nat. Tijd. Ned. Indie.*, 1 : 103.

1984. *Gerres abbreviatus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 579, fig. 227.

Material examined : Mayabunder (North Andaman), 15.8.1991, 2 exs., 90 & 182 mm, Coll : K. Chandra & party, Reg. No. 1826; 10.1.1992, 1 ex, 163 mm, Coll : D.V. Rao, Reg. No. 2377.

Diagnostic features : D. IX. 10; A. III, 7; P. 17; V. I., 5; LI. 41. Depth 2.2-2.3 in standard length, forming a sharp angle at dorsal fin origin; 2nd dorsal fin spine less than head length; 6 scale rows between lateral line and 5th dorsal spine; pectoral fin reaching beyond the origin of anal. Body silvery with indistinct longitudinal lines along scale rows above lateral line; margin of dorsal fin black; pectoral, ventral and anal fins yellow.

Habitat : Found in shallow coastal waters.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is., Sri Lanka, Indonesia to Ryukyu Islands.

***Gerres oblongus* Cuvier, 1830**

1830. *Gerres oblongus* Cuvier, *Hist. Nat. Poiss.*, 6 : 479.

1986. *Gerres oblongus* : Woodland, in Smith & Heemstra, *Smith's Sea fishes*, p. 609, fig. 194.3.

Material examined : Katchal Is. (Nicobar Group), 13.2.1993, 1 ex., 237 mm, Coll : D.V. Rao & party, Reg. No. 2284; Mayabunder (North Andaman), 15.8.1991, 1 ex., 175 mm, Coll : K. Chandra & party, Reg. No. 1672; Red Skin Is. (South Andaman), 6.12.1990, 4 exs., 120-140 mm, Coll : K. V. Raman & party, Reg. No. 1634.

Diagnostic features : D. IX. 10; A. III, 7; P. 16-17; V. I., 5; LI. 45-48. Depth 3.2-3.35 head 3.0-3.2 in standard length; dorsal profile from tip of snout to dorsal origin almost straight; 2nd dorsal spine shorter than head; $5\frac{1}{2}$ scale rows between lateral line and base of 5th dorsal spine. Body light brown dorsally, sides silvery with 6 indistinct dusky bars on upper half of body.

Habitat : Found in tidal creeks and shallow coastal waters.

Distribution : Indo-West Pacific, from east coast of Africa to Philippines and New Caledonia to Samoan Island.

***Gerres oyena* (Forsskal, 1775)**

(Fig. 170)

1775. *Labrus oyena* Forsskal, *Descript. Animal*, p. 35.

1986. *Gerres oyena* : Woodland, in Smith & Heemstra, *Smith's Sea fishes*, p. 609, fig. 194.4.

Material examined : Nancowry Is. (Nicobar Group), 10.2.1993, 1 ex., 131 mm, Coll : D. V. Rao & party, Reg. No. 2314.

Diagnostic features : D. IX. 10; A. III, 7; P. 15; V. I., 5; LI. 39. Depth 2.9, head 3.1 in standard length; $3\frac{1}{2}$ scales rows between lateral line and 5th dorsal spine; 2nd dorsal spine less than head length; pectoral reaching to just above anus. Body olive above, silvery-grey below; margin of dorsal and caudal fins dusky.

Habitat : Found in shallow coastal waters and creeks.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Caroline Island.

***Gerres poeti* Cuvier, 1829**

1829. *Gerres poeti* Cuvier, *Regne. Animal.*, ed. 2, 2 : 188.

1986. *Gerres poeti* Talwar & Kacker, *Commercial Sea Fishes of India*, p. 586.

Material examined : Diglipur (North Andaman), 26.2.1990, 2 exs., 126 mm, Coll : G. C. Rao & party, Reg. No. 1463.

Diagnostic features : D. IX. 10; A. III, 7; P. 16; V. I., 5; LI. 36. Depth 2.45 in standard length. Mouth small and protrusile; dorsal and anal spines strong; pectoral fin scarcely longer than head. Body silvery, dark on dorsal surface; margin of dorsal fin dusky.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Family HAEMULIDAE

Small to moderate sized fishes; body oblong and compressed; head profile strongly convex; mouth terminal, small or moderate; lips thick or normal; chin with pores anteriorly; feeble teeth in bands on jaws; tongue and palate edentate; preopercle serrate; maxilla hidden when mouth is closed; opercle with one indistinct spine, pointing posteriorly; dorsal fin continuous; 2nd anal spine usually stout and long; caudal fin truncate or emarginate.

Key to Genera

- 1a Chin with 2 small pores, and median groove; lips not thick; 4-8 scale rows from dorsal origin to lateral line ***Pomadasys***
- 1b Chin with 4-6 pores; no central pit; lips thick; 10-18 scale rows from dorsal origin to lateral line **2**
- 2a Dorsal spines 9-10, 2nd spine longest; outer teeth in jaws not enlarged ***Diagramma***
- 2b Dorsal spines 11-14; 2nd spine not longest; outer teeth in jaws enlarged; usually with distinct bars or stripes ***Plectorhinchus***

Genus *Diagramma* Oken, 1917

Diagramma pictum (Thunberg, 1792)

1792. *Perca picta* Thunberg, *Vet. Akad. Nya. Handl.*, 13 : 141, pl. 5.

1986. *Diagramma pictum* : Smith & Mckay, in Smith & Heemstra, *Smith's Sea fishes*, p. 565, pl. 52.

Material examined : Rutland Is. (South Andaman), 18.10. 1993, 1 ex., 224 mm, Coll : D. V. Rao & party, Reg. No. 2417.

Diagnostic features : D. IX, 23; A. III, 7; P. 16; V. I., 5; LI. 65. Depth 5.0, head 3.6 in standard length; dorsal fin not notched; 2nd dorsal spine longest; caudal fin truncate. Body uniform silvery grey with spots on dorso-lateral side and scattered spots on caudal fin.

Habitat : Found around coral reef areas in small numbers.

Distribution : Indo-West Pacific, from Pakistan, east coast of Africa, coasts of India, Andaman Is. and Sri Lanka to Philippines.

Genus *Plectorhinchus* Lacepede, 1802

Key to Species

- 1a Dorsal XIV, 15-16, fin deeply notched, spines strong; lips greatly swollen; body uniformly dark, no cross bars *P. gibbosus*
- 1b Dorsal XIII-XIV, 17-22, fin deeply notched or not; lips moderate; body with bars or spots 2
- 2a Lateral line scales below 65; body with scattered black blotches including median fins *P. chaetodonoides*
- 2b Lateral line scales above 75; body yellow with several dark brown stripes; median fins with black blotches *P. orientalis*

Plectorhinchus chaetodonoides Lacepede, 1800

1800. *Plectorhinchus chaetodonoides* Lacepede, *Hist. Nat. Poiss*, 3 : 135.

1993. *Plectorhynchus chaetodonoides* : Rao *et al*, *J. Andaman Sci. Assoc.*, 9 (1 & 2) : 51.

Material examined : Bambooflat (South Andaman), 1.6.1993, 1 ex., 286 mm, Coll : P. T. Rajan, Reg. No. 2308.

Diagnostic features : D. XIII, 18; A. III, 8 P. 17; V. I., 5; LI. 61. Body robust, lips thick; dorsal fin deeply notched between spinous and soft portions; caudal fin emarginate. Body greyish white with scattered black blotches on body, dorsal, anal and caudal fins; ventral side of body and head without blotches; paired fins dusky.

Habitat : Found in reef areas.

Distribution : Indo-West Pacific, from Mauritius, Andaman Is., Cocos-Keeling, Indonesia to Japan and New Guinea to Samoa.

Plectorhinchus gibbosus (Lacepede, 1802)

(Fig. 171)

1802. *Holocentrus gibbosus* Lacepede, *Hist. Nat. Poiss.*, 4 : 344.

1986. *Plectorhinchus gibbosus* : Smith & McKay, in Smith & Heemstra, *Smith's Sea Fishes*, p. 566, fig. 179.5.

Material examined : Hut Bay (Little Andaman), 20.9.1990, 1 ex., 118 mm, Coll : K. V. Raman & party, Reg. No. 1962; Mayabunder (North Andaman), 10.1.1992, 2 ex., 235 & 242 mm, Coll : D. V. Rao, Reg. No. 1961.

Diagnostic features : D. XIV. 16; A. III, 7; V. I., 5; LI. 53-54. Dorsal fin deeply notched; upper lip more thick; dorsal fin spines more strong, the 4th and 5th longest; 2nd anal spine longer and stronger; snout scaleless upto nostrils. Body dark reddish grey; margin of cheek and gill cover black; all fins dark brown.

Habitat : Found around reef slopes in deep waters.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to China and Australia to Samoa.

***Plectorhinchus orientalis* (Bloch, 1793)**

(Fig. 172)

1793. *Anthias orientalis* Bloch, *Nat. Ausland Fische.*, 7 : 10, pl. 326.

1936. *Plectorhinchus orientalis* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 7 : 425, fig. 83.

Material examined : Ragat Bay (Middle Andaman), 19.8.1991, 2 exs, 196 & 210 mm, Coll : K. Chandra & party, Reg. No. 1670; South Reef Is. (North Andaman), 23.3.1993, 1 ex., 180 mm, Coll : D. V. Rao & party, Reg. No. 2214.

Diagnostic features : D. XIII, 18; A. III, 7; P. 18; V. I. 5; LI. 83-86. Depth 2.9-3.2, head 3.4-3.48 in standard length; hind border of preopercle serrated; pectoral as long as head without snout. Body yellow with several dark brown stripes continuous around front of head; dorsal with large blotches, the edge black; anal and caudal fins with black blotches; pectoral fin yellow with a dark blotch at its base.

Habitat : Found around coral reefs.

Distribution : Indo-West Pacific, from Pakistan to coasts of India, Andaman Is., Sri Lanka to Tahiti Island.

Genus *Pomadasys* Lacepede, 1802

Key to Species

- 1a Lateral line scales 50-53; back and nape with incomplete cross bars; spinous dorsal with large black blotch; no blotch on opercle.....***P. maculatum***
- 1b Lateral line scales below 50; back and nape with complete bars or not; no blotch on dorsal fin; blotch on opercle present or absent 2
- 2a Body silvery with distinct bars; round spots on basal half of dorsal membrane***P. kaakan***
- 2b Body silvery; dark blotch on opercle***P. argyreus***

***Pomadasys argyreus* (Valenciennes, 1833)**

1833. *Pristipoma argyreus* Valenciennes, *Hist. Nat. Poiss*, 9 : 385.

1991. *Pomadasys argyreus* : Talwar & Jhingren, *Inland fishes of India and Adjacent Countries*, 2 : 844.

Material examined : Rangat (Middle Andaman), 19.8.1991, 1 ex., 136 mm, Coll : K. Chandra & party, Reg. No. 1963; Port Blair (South Andaman), 31.7.1993, 2 exs., 54 & 61 mm, Coll : D. V. Rao, Reg. No. 2724.

Diagnostic features : D. XII, 13; A. III, 7; P. 17; V. I. 5; LI. 45-48. Depth 2.7-2.8, in standard length, eye 3.4 in head; outer series of teeth slightly enlarged. Body silvery; fins yellowish brown; dark blotch on operculum.

Habitat : Found in creeks and shallow coastal waters.

Distribution : Indo-West Pacific, from Pakistan, coasts of India, Andaman Is., Sri Lanka to Philippines.

***Pomadasys Kaakan* (Cuvier, 1830)**

1830. *Pristipoma kaakan* Cuvier, *Hist. Nat. Poiss.*, 5 : 244.

1986. *Pomadasys kaakan*: Smith & McKay, in Smith & Heemstra, *Smith's Sea Fishes*, p. 569, fig. 179.13.

Material examined : Car Nicobar Is., 10.9.1988, 2 exs., 181 mm, Coll : H. S. Mehta & party, Reg. No. 1842; Rangat Bay (Middle Andaman), 19.8.1991, 2 exs., 235 mm, Coll : K. Chandra & party, Reg. No. 1711.

Diagnostic features : D. XII, 13; A. III, 7; P. 17; V. I. 5; LI. 47-48. Depth 2.8, head 2.6-2.7 in standard length, eye 4.3 in head. Two small pores on chin; dorsal and anal fin spines strong; caudal fin slightly emarginate. Body silvery with broken vertical bars. round spots on lower half of dorsal fin; black blotch on opercle.

Habitat : Found around silty coral rubble areas.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman and Nicobar Is., Sri Lanka to Queensland.

***Pomadasys maculatum* (Blotch, 1797)**

(Fig. 173)

1797. *Anthias maculatum* Bloch, *Nat. Ausland. Fische.*, p.7, pl. 326.

1986. *Pomadasys maculatum* : Smith & McKay, in Smith & Heemstra, *Smith's Sea Fishes*, p. 570, fig. 179.15.

Material examined : Rangat Bay (Little Andaman), 19.8.1991, 2 exs., 170 mm, Coll : K. Chandra & party, Reg. No. 1964; Port Blair (South Andaman), 31.7.1993, 2 exs., 62 & 87 mm, Coll : D. V. Rao, Reg. No. 2723.

Diagnostic features : D. XII, 14; A. III, 7; P. 17; V. I. 5; LI. 51-53. Depth 2.7-2.8, head 2.9 in standard length, eye 3.4-3.5 in head. Body silvery white, nape and back with a series of incomplete cross bars on upper half of body, varying in shape and size, the bar on nape inconspicuous; spinous dorsal fin large with black blotch; caudal fin dusky distally.

Habitat : Found on sandy areas near reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is, Sri Lanka to Japan and New Guinea and Queensland.

Family SPARIDAE

Body oblong to ovate; head large with steep upper profile; mouth small; teeth conical or flat; palate and vomer edentate; snout and suborbital scaleless; preopercle and opercle scaly; single dorsal fin; the spines of dorsal and anal fins strong; pectoral fin long and pointed; caudal fin emarginate or forked; lateral line single, continuous.

Genus *Acanthopagrus* Peters, 1852

Acanthopagrus berda (Forsskal, 1775)

1775. *Sparus berda* Forsskal, *Descript. Animal*, p. 32.

1986. *Acanthopagrus berda* : Smith & Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 581, pl. 58.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 90 mm, Coll : G. C. Rao & party, Reg. No. 1972; Diglipur (North Andaman), 15.2. 1990, 1 ex., 262 mm, Coll : G. C. Rao & party, Reg. No. 1945.

Diagnostic features : D. XI, 11; A. III, 8; P. 14; V. I. 5; LI. 44-47. Depth 2.0-2.35, in standard length. Body fairly deep and compressed; head large, rather pointed; 4-6 canine teeth in front of jaws; scales large; preoperculum with 6 rows of scales; interorbital without scales; 2nd anal spine distinctly longer than 3rd spine; caudal fin forked. Colour grey above, silvery white below, dorsal and anal fins with dusky markings; soft dorsal, anal and ventral fins blackish; pectoral fins yellow.

Habitat : Found in sandy reef areas and creeks.

Distribution : Wide spread in tropical Indo-Pacific region.

Family LETHRINIDAE

Moderate sized fishes, head large with a deep suborbital space; snout rather pointed, mouth terminal, lips thick and fleshy; preopercle smooth, upper jaw protrusile; teeth small, 2 or 3 canines near symphysis; vomer and palatine edentate; gill rakers reduced and knob-like; dorsal fin continuous; ventral fin with axillary scaly process; lateral line complete; scales ctenoid; preoperculum without scales; no scales on top of head; inner base of pectoral fin with or without scales; caudal fin emarginate.

Key to Genera

- 1a Cheek with 4-6 vertical scale rows; 10 rays in dorsal; ~~9-10~~ rays in anal; surface of maxilla smooth *Gymnocranius*
- 1b Cheek naked ; 9 rays in dorsal, 8 rays in anal fin ; surface of maxilla with or without ridge *Lethrinus*

Genus *Gymnocranius* Klunzinger, 1870

* *Gymnocranius elongatus* Senta, 1973

1973. *Gymnocranius elongatus* Senta, *Japan J. Ichthyol.*, 20(3) : 135-144.

1989. *Gymnocranius elongatus* : Carpenter & Allen, *FAO Fish. Synop.*, 9 (125) : 23, pl. 1,3, fig. 48.

Material examined : Rutland Is. (South Andaman), 15.10.1993, 1 ex., 184 mm, Coll : D. V. Rao & party, Reg. No. 2735.

Diagnostic features : D. XI, 10; A. III, 10; P. 14; V. I. 5; LI. 47 + 2; Ltr. 5 $\frac{1}{2}$ /16. Depth 2.3, head 2.8 in standard length, eye 2.0 in head; head profile evenly rounded; lower edge intersected by line from snout tip to middle of caudal fin fork; surface of maxilla smooth; cheek with 5 rows of scales; inner surface of pectoral fin axil scaleless; caudal fin deeply forked. Body silvery, light brown above with 8 faint transverse bands on sides; fins yellowish-white; caudal fin margin and tips red.

Habitat : Found near reef slopes.

Distribution : Eastern Indian Ocean to West Pacific, from east coast of India, Andaman Is., Sri Lanka to Japan and New Guinea to Solomon Island.

Genus *Lethrinus* Cuvier, 1829

Key to Species

- 1a Inner surface of pectoral fin base without scales or with few scales covering less than half of the inner base of fin 2
- 1b Inner surface of pectoral fin base with scales 3
- 2a Fourth dorsal spine usually longest; no melanophores between inner rays of ventral fin; three dark streaks radiating from eye on snout; inner surface of pectoral fin base never red *L. microdon*
- 2b Third dorsal spine usually longest; melanophores between inner rays of ventral fin; no dark streaks radiating from eye; a red spot at upper base of pectoral fin *L. xanthochilus*
- 3a A large black blotch below lateral line and centered on posterior tip of pectoral fin *L. harak*
- 3b No dark blotch below lateral line 4
- 4a Posterior edge of preopercle and opercle red; outer surface of maxilla usually smooth; profile of head around eye distinctly convex; head length 0.8-0.9 in depth; 4-6 orange stripes on sides *L. ornatus*
- 4b Posterior edge of preopercle and opercle not red; outer surface of maxilla usually with ridge or knob; head around eye slightly concave or nearly straight; head length 0.9-1.1 in depth; no orange stripes on sides of body, if present, not more than one stripe 5
- 5a Scale rows in lower series around caudal peduncle usually 13-14; lateral teeth include distinct molars; eyes large, 3.4-4.0 in head and close to dorsal profile *L. barbonicus*

- 5b Scale rows in lower series around caudal peduncle usually 15; lateral teeth either rounded, molars with tubercles; eye 3.8-5.1 in head, not very close to dorsal profile 6
- 6a Outer surface of maxilla with knob; 15-16 transverse scale rows from lateral line to origin of anal fin; prominent orange-yellow stripe at the level of pectoral fin base with narrow stripes one above and below *L. obsoletus*
- 6b Outer surface of maxilla with ridge; 16-17 transverse scale rows from lateral line to origin of anal fin; colour pattern not as in 5a 7
- 7a Scale rows between lateral line and base of middle dorsal fin spines $5\frac{1}{2}$; 5-9 scales in supra-temporal patch; 3 blue lines or rows of spots radiating from eye *L. nebulosus*
- 7b Scale rows between lateral line and base of mid dorsal spines $4\frac{1}{2}$; 3-5 scales in supra-temporal patch; no blue lines radiating from eye; red bar at base of pectoral fin; 9 dusky bars on sides of body *L. mahsena*

***Lethrinus barbonicus* Valenciennes, 1830**

1830. *Lethrinus barbonicus* Valenciennes, *Hist. Nat. Poiss.* 6 : 303.

1989. *Lethrinus barbonicus* : Carpenter & Allen, *FAO Fish. Synop.* 9 (125) : 51, pl. III, fig. 105.

Material examined : Tugapur (North Andaman), 19.9.1987, 1 ex., 265 mm, Coll : H. S. Mehta & party, Reg. No. 2293.

Diagnostic features : D. X, 9; A. III, 8; P. 13; V. I., 5; LI. 48. Ltr. $5\frac{1}{2}$ + 1 + 16.. Depth 2.5, head 2.85 in standard length. Dorsal profile near eye almost straight; snout moderately short and blunt; interorbital space convex; eye situated close to dorsal profile; outer surface of maxilla with a distinct longitudinal ridge; cheek without scales; 6 rows of scales on supratemporal region; inner surface of pectoral fin covered with scales. Body dark green, centers of scales lighter, form into a irregular pattern of broken dusky bars; whitish on lower body; head brownish grey; pectoral and ventral fins white; dorsal and anal fins mottled white; caudal fin white.

Habitat : Found in reef areas.

Distribution : Western Indian ocean including Red Sea and Arabian Gulf to Reunion.

***Lethrinus harak* (Forsskal, 1775)**

1775. *Sciaena harak* Forsskal, *Descript. Animal.* 11 : 52.

1989. *Lethrinus harak* : Carpenter & Allen, *FAO Fish. Synop.*, 9 (125) : 64, fig. 121, pl. 4.

Material examined : Mayabunder (North Andaman), 15.8.1991, 2 exs., 310 mm, Coll : K. Chandra & party, Reg. No. 1682.

Diagnostic features : D. X. 10; A. III, 8; P. 13; V. I., 5; LI. 46. Ltr. $4\frac{1}{2}$ + 15. Depth 2.7, head 3.28 in standard length, eye 3.8 in head. Dorsal profile near eye convex; eye situated close to dorsal profile; cheek without scales; inner base of pectoral fin with scales. Body grey above, whitish below with orange edged large black oblong blotch on body below lateral line, above pectoral fin level; caudal fin red, other fins white.

Habitat : Found on coral rubble in shallow areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Samoa Island.

***Lethrinus mahsena* (Forsskal, 1775)**

1775. *Sciaena mahsena* Forsskal, *Descript. Animal*, 11 : 52.

1989. *Lethrinus mahsena* : Carpenter & Allen, *FAO Fish. Synop.*, 9 (125) : 69, fig. 127, pl. 5.

Material examined : Havelock Is. (Ritchie's Archipelago), 19.11.1991, 5 exs., 120-156 mm, Coll : D. V. Rao, Reg. No. 3002.

Diagnostic features : D. X, 9 ; A. III, 8; P. 13; V. I, 5; L1. 48; Ltr. $4\frac{1}{2}$ /16. Depth 2.45-2.5, head 2.85-2.9 in standard length; posterior nostril an oblong longitudinal opening, closer to orbit; outer surface of maxilla with a longitudinal ridge; no scales on cheek; supra-temporal patch with 3-5 scales; inner surface of pectoral fin densely covered with scales. Body greenish blue, lighter below; 9 dusky brown bars on the sides of body; a red bar at base of pectoral fin, the red bar extending to edge of operculum; base and tips of ventral fin and membrane of dorsal fin red; anal fin white; tips of caudal fin red.

Habitat : Found around reef areas.

Distribution : Western Indian Ocean, from Red Sea, east coast of Africa to Sri Lanka and Andaman Islands.

***Lethrinus microdon* Valenciennes, 1830**

1830. *Lethrinus microdon* Valenciennes, *Hist. Nat. Poiss.* 6 : 295.

1989. *Lethrinus microdon* : Carpenter & Allen, *FAO Fish. Synop.*, 9 (125) : 71, fig. 129, pl. 30.

Material examined : Diglipur (North Andaman), 15.2.1990, 1 ex., 280 mm, Coll : G. C. Rao, Reg. No. 1943; Port Blair (South Andaman), 30.7.1991, 1 ex., 170 mm, Coll : D. V. Rao, Reg. No. 2999; Mayabunder (North Andaman), 15.8.1991, 1 ex., 215 mm, Coll : K Chandra & party, Reg. No. 3000; Havelock Is. (Ritchie's Archipelago), 19.11.1991, 1 ex., 240 mm, Coll : D. V. Rao, Reg. No. 3001; Rutland Is. (South Andaman), 18.10.1993, 1 ex., 327 mm, Coll : D. V. Rao, Reg. No. 2948.

Diagnostic features : D. X., 9; A. III, 8; P. 13; V. I., 5; LI. 48. Ltr. $4\frac{1}{2}$ / 16-17. Depth 3.0-3.3, head 2.8-2.9 in standard length, eye 4.4-4.7 in head; dorsal profile near eye straight; cheek without scales; 9-10 scales in supra-temporal patch; inner surface of pectoral fin scaled. Body brownish-blue; three dark streaks radiating from eye; all fins pale pink.

Habitat : Found around sandy areas near reefs.

Distribution : Indo-West Pacific, from Persian Gulf, Red Sea, east coast of Africa to coasts of India, Andaman Is. to Ryukyu Is., New Guinea and Australia.

***Lethrinus nebulosus* (Forsskal, 1775)**

1775. *Sciaena nebulosus* Forsskal, *Descript. Animal*, 11 : 52.

1989. *Lethrinus nebulosus* : Carpenter & Allen, *FAO Fish. Synop.*, 9 (125) : 75, fig. 133, pl. 6.

Material examined : Chidiyatapu (South Andaman), 15.8. 1993, 1 ex., 282 mm, Coll : D. V. Rao, Reg. No. 2734.

Diagnostic features : D. X., 9; A. III, 8; P. 13; V. I., 5; LI. 47. Ltr. 5/16. Depth 2.7, head 3.0 in standard length, eye 4.6 in head; dorsal profile from eye to snout straight; outer surface of maxilla with ridge; cheek without scales; 7 scales in supra-temporal patch. Body light yellow, pale below; centers of scales with light blue spot and irregular dark bars on sides; series of elongate blue spots radiating from eye; fins light yellow; edge of dorsal fin light red; opercular membrane bluish.

Habitat : Found around reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is. to Japan, and New Guinea to Samoa Island.

***Lethrinus obsoletus* (Forsskal, 1775)**

1775. *Sciaena obsoleta* Forsskal, *Descript. Animal*, 9 : 52.

1986. *Lethrinus ramak* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 598, pl. 65.

1993. *Lethrinus obsoletus* : Rao *et al*, *Environment & Ecology*, 11 (4) : 883.

Material examined : Mayabunder (North Andaman), 15.8.1991, 1 ex., 205 mm, Coll : K. Chandra & party, Reg. No. 1683; Rangat (Middle Andaman), 19.8.1991, 1 ex., 180 mm, Coll : K. Chandra & party, Reg. No. 1690; Havelock Is. (Ritchie's Archipelago), 21.11.1991, 1 ex., 182 mm, Coll : D. V. Rao, Reg. No. 1742.

Diagnostic features : D. X., 9; A. III, 8; P. 13; V. I., 5; LI. 47. Ltr. 5¹/₂/16. Depth 2.7, head 2.6 in standard length, eye 4.4, snout 1.9 in head length; dorsal profile near eye almost straight, eye close to dorsal profile; outer surface of maxilla with a distinct knob; 7 rows of scales in supra-temporal patch; inner surface of pectoral base with scales. Body olive to brown, lighter below; centres of scales lighter than ground colour and orange-yellow stripe on lower side at the level of pectoral fin base; faint orange-yellow stripe above and below this stripe; white spots below eye; posterior edge of operculum dark brown; fins whitish.

Habitat : Found around reefs and rubble areas.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Ryukyu Is. and Australia to Samoa Island.

***Lethrinus ornatus* Valenciennes, 1830**

1830. *Lethrinus ornatus* Valenciennes, *Hist. Nat. Poiss.*, 6 : 310.

1989. *Lethrinus ornatus* : Carpenter & Allen, *FAO Fish. Synop.*, 9 (125) : 80, fig. 139, pl. 7.

Material examined : Diglipur (North Andaman), 15.2.1990, 1 ex., 210 mm, Coll : G. C. Rao, Reg. No. 1951; Port Blair (South Andaman), 24.8.1993, 2 exs., 132 mm, Coll : D. V. Rao, Reg. No. 2733.

Diagnostic features : D. X, 9; A. III, 8; P. 13; V. I., 5; LI. 46. Ltr. $5\frac{1}{2}/15$. Depth 2.3-2.5, head 2.9 in standard length, eye 3.1-3.25 in head; maxilla smooth; cheek without scales; 7 scales in supra-temporal patch; inner surface of pectoral fin with scales. Body dusky, lower sides lighter with 5 orange stripes; posterior edge of operculum and preoperculum bright red; pectoral and anal fins yellowish; posterior part of dorsal and caudal fins reddish.

Habitat : Found on sandy bottom around coral reefs.

Distribution : Eastern Indian Ocean and West Pacific, from Sri Lanka, Andaman Is. to Ryukyu Is. and New Guinea and Australia.

***Lethrinus xanthochilus* Klunzinger, 1870**

(Fig. 174)

1870. *Lethrinus xanthochilus* Klunzinger, *Verh. Zool. Bot. Ges. Wein.*, 20 : 753.

1989. *Lethrinus xanthochibes* : Carpenter, *FAO Fish. Synop.*, *Lathrinids of the world*, (125) 9 : 89, fig. 153, pl. 8.

Material examined : N. Button Island (Ritchie's Archipelago), 15.3.1996; 1 ex., 396 mm, Coll : K. Chandra & party, Reg. No. 3089.

Diagnostic features : D. X, 9; A. II, 8; P. 13; V. I., 5; LI. 47. Ltr. $4\frac{1}{2}/15$. Depth 3.25, head 1.15 in standard length, eye 3.85 in head; snout 2.15 in head; dorsal profile of snout straight; posterior nostril a vertical oblong opening closer to orbit; eye close to dorsal profile; outer surface of maxilla smooth; 8 scales in supra temporal patch; inner surface of pectoral fin without scales. Body yellowish-grey with scattered irregular dark spots; lips yellow, the upper lip more yellow; a red spot at upper base of pectoral fin; fins light grey and mottled; edges of dorsal and caudal fins reddish.

Habitat : Found around reefs near sandy areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, Lakshadweep, Maldives, Andaman Is., Indonesia to Ryudyu Is. Caroline to Marquesas and New Caledonia to Vanuatu.

Family NEMIPTERIDAE

Body oblong or elongate, small to moderate sized, slightly compressed; mouth terminal; teeth in jaws small, conical or villiform in narrow bands; canines present or absent; palatines and vomer edentate; dorsal fin continuous; caudal fin forked or emarginate, the upper lobe often with a filament; scales on body large and ctenoid.

Key to Genera

- 1a Sub-orbital with distinct backwardly directed spine below eye; no canines in jaws ***Scolopsis***.
 1b Sub-orbital spine absent; small canines anteriorly in jaws ***Nemipterus***

Genus *Nemipterus* Swainson, 1839*Key to Species*

- 1a Upper lobe of caudal fin prolonged into a filament..... 2
 1b Upper lobe of caudal fin normal, no filamentous prolongation 4
 2a First and 2nd spines of dorsal fin close together forming a single long filament ***N. luteus***
 2b Dorsal spines normal 3
 3a Canines anteriorly in both jaws; dorsal fin base without markings; anal fin with or without yellow spots ***N. metopias***
 3b Canines anteriorly in upper jaw only; dorsal fin base with longitudinal yellow band; anal fin with several irregular longitudinal yellow streaks; caudal filament yellow ***N. japonicus***
 4a Interspinous membrane of dorsal fin distinctly and deeply notched; dorsal fin spines much longer than its soft rays; upper part of body with 8-9 indistinct saddle-like blotches ***N. tolu***
 4b Interspinous membrane of dorsal fin not deeply notched; dorsal fin spines more or less sub-equal with its soft rays; bright yellow bands on sides; anal fin milky-white ***N. bleekeri***

***Nemipterus bleekeri* (Day, 1875)**

1875. *Synagris bleekeri* Day, *Fishes of India*, p. 92, pl. 24.

1984. *Nemipterus bleekeri* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 563.

Material examined : Rangat (Middle Andaman), 19.8.1991, 1 ex., 165 mm, Coll : K. Chandra & party, Reg. No. 1636.

Diagnostic features : D. X, 9; A. III. 7; P. 16; V. I, 5; L1. 47. Depth 3.6, head 3.4 in standard length, eye 3.8 in head; interspinous membrane of dorsal emarginate; no filamentous rays in fins. Body light reddish above, silvery below with narrow yellow bands; a bluish spot on operculum; all fins light red.

Habitat : Found on sandy bottom near reef areas.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. Sri Lanka to Vietnam.

***Nemipterus japonicus* (Bloch, 1791)**

1791. *Sparus japonicus* Bloch, *Nat. Ausland Fische*. 5 : 110, pl. 277.

1984. *Nemipterus Japonicus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 564, fig. 222.

Material examined : Port Blair (South Andaman), 30.7.1991, 2 exs., 220 mm, Coll : D. V. Rao Reg. No. 1635; Havelock Is. (Ritchie's Archipelago), 22. 11. 1991, 1 ex., 242 mm, Coll : D. V. Rao, Reg. No. 1746.

Diagnostic features : D. X., 9; A. III, 7; P. 17; V. I. 5; L1. 48-49. Depth 2.7-2.74, head 2.95-3.2 in standard length, eye 3.4-3.6 in head; canines present in upper jaw only; caudal fin forked; its upper lobe prolonged into a filament. Body light rosy above, silvery below; bright yellowish orange bands along sides; dorsal fin rosy with yellow band along base; anal fin milky white; caudal fin rosy, its filament yellow.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from Zanzibar to coasts of India, Andaman Is., Sri Lanka to Japan.

***Nemipterus luteus* (Schneider, 1801)**

1801. *Coryphaena lutea* Schneider, *Syst. Ichth. Bloch*, p. 297, pl. 58.

1984. *Nemipterus luteus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 566.

Material examined : Mayabunder (North Andaman), 8.1.1992, 3 exs., 165 mm, Coll : D. V. Rao, Reg. No. 1887.

Diagnostic features : D. X, 9; A. III, 7; P. 16; V. I, 5; L1. 47. Depth 3.0, head 3.2 in standard length, eye 3.0 in head; upper jaw with canine teeth dorsal fin spines flexible; 1st and 2nd spines fused together and forming a single long filament; upper caudal fin lobe prolonged into a filament. Body rosy above, silvery below with yellow stripes below lateral line; an yellow spot below origin of lateral line; fins light pink.

Habitat : Found on coral rubble areas in fairly deep waters.

Distribution : Indo-West Pacific, from east coast of India, Andaman Is., East Indies and Philippines.

*** *Nemipterus metopias* (Bleeker, 1852)**

1852. *Dentex metopias* Bleeker, *Achtste. Bijdr. Fische Fauna Ambon*, p. 51.

1936. *Nemipterus metopias* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 7 : 365.

Material examined : Havelock Is. (Ritchie's Archipelago), 19.11.1991, 1 ex., 195 mm, Coll : D. V. Rao, Reg. No. 1886; Mayabunder (North Andaman), 8.1.1992, 2 exs., 205 mm, Coll : D. V. Rao, Reg. No. 2351.

Diagnostic features : D. X, 9; A. III, 7; P. 16; V. I, 5; L1. 49-50. Depth 3.8-4.0, head 3.3 in standard length, eye 3.2 in head; curved canines in both the jaws; caudal fin forked, upper lobe filamentous. Body reddish brown, lower sides yellowish silvery; two yellowish bands on anterior head region, one from nostril to eye, the other from upper lip to the lower margin of eye; dorsal fin yellow; caudal fin light pink, its filament yellowish; base of anal fin membrane with yellow spots.

Habitat : Sandy bottom near reef areas.

Distribution : Indo-West Pacific, from Pakistan, east coast of India, Andaman Is. to Ryukyu Islands.

***Nemipterus tolu* (Valenciennes, 1830)**

1830. *Dentex tolu* Valenciennes, *Hist. Nat. Poiss.*, 6 : 249.

1993. *Nemipterus tolu* : Rao *et al*, *J. Andaman Sci. Assoc.*, 9 (1 & 2) : 53.

Material examined : Little Andaman, 27.10.1991, 1 ex., 90 mm, Coll : P. T. Rajan Reg. No. 2053; Wandoor (South Andaman), 19.8.1992, 1 ex, 215 mm, Coll : D. V. Rao, Reg. No. 2055; Bambooflat (South Andaman), 6.7.1992, 1 ex., 147 mm, Coll : P. T. Rajan, Reg. No. 2045.

Diagnostic features : D. X, 9; A. III, 7; P. 16; V. I, 5; L1. 49. Depth 3.4-3.6, head 3.4 in standard length; eye 3.0 in head, equal to snout length; maxilla reaching to below anterior border of eye; canine teeth only present in upper jaw; dorsal fin spines flexible, the first and second spines shorter than the following; caudal fin deeply forked. Body rosy above, silvery below; upper part of body with 8 distinct large saddle-like blotches; fins light yellow; caudal fin rosy.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, Persian Gulf, coasts of India, Andaman Is., Sri Lanka to Australia.

Genus *Scolopsis* Cuvier, 1817

Key to Species

- 1a Lateral line scales 36-40 2
- 1b Lateral line scales above 40 3

- 2a Scales on head beginning somewhat from front border of eyes; no bands on body; scales with silvery spots *S. margaritifer*
- 2b Scales on head beginning between eyes; two longitudinal bands on body *S. leucotaenia*
- 3a Maxillary with a denticulated ridge; silvery stripe on back below dorsal fin *S. ciliatus*
- 3b Maxillary smooth without denticulate ridge 4
- 4a Scales $4\frac{1}{2}$ -5 rows between lateral line and median dorsal spines; distinct broad lateral band on body *S. dubiosus*
- 4b Scales $3\frac{1}{2}$ rows between lateral line and median dorsal spines; lateral band may be present or absent 5
- 5a Scales on head beginning before eyes; a prominent white curved band with black margin from mouth to middle of dorsal fin; spinous dorsal bright yellow *S. bilineatus*
- 5b Scales on head beginning between anterior part of eye at some distance behind nostrils 6
- 6a Lateral line scales 49-50; preoperculum with 5-6 transverse rows of scales; 1st anal spine less than half length of 2nd spine; an yellow band from eye to base of caudal; bluish band between eyes *S. personatus*
- 6b Lateral line scales 43-46; preoperculum with 4 transverse rows of scales; 1st anal spine more than $\frac{1}{3}$ rd of 2nd spine; body with 3-4 yellowish white longitudinal stripes, 3rd stripe from pectoral fin to middle of caudal peduncle *S. cancellatus*

***Scolopsis bilineatus* (Bloch, 1793)**

(Fig. 175)

1793. *Anthias bilineatus* Bloch, *Ausland Fische.*, 7 : 3.

1980. *Scolopsis bilineatus* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 323, fig. 274.

Material examined : Port Blair (South Andaman), 31. 7.1991, 1 Ex., 190 mm, Coll : D. V. Rao, Reg. No. 1624 ; Havelock Is. Ritchie's Archipelago) 21.11.1991. 1 ex. 16. 3. 1993, 1 ex., 163 mm, Coll : D. V. Rao, Reg. No. 1747; Mayabunder (North Andaman), 16.3.1993, 2 exs., 155 mm, Coll : G. C. Rao & party, Reg. No. 2264; Chidiyatapu (South Andaman), 15.8.1993, 2 exs., 126 & 150 mm, Coll : D. V. Rao, Reg. No. 2720; Rutland Is. (South Andaman), 25.1.1994, 1 ex., 180 mm, Coll : D. V. Rao & party, Reg. No. 2601.

Diagnostic features : D. X, 9; A. III, 7; P. 17; V. I, 5; L1. 44-46. Depth 2.6-2.8, head 3.25-3.28 in standard length. Snout slightly pointed; posterior spine of suborbital elongate. Body dusky on dorsal side of head and body, whitish on sides and below; a prominent curved white band with a black margin from mouth to middle of dorsal fin base; a pair of short white stripes above eye; spinous dorsal bright yellow; white mark on soft dorsal extending onto back; anal fin black anteriorly.

Habitat : Found in reef lagoons.

Distribution : Indo-West Pacific, from Lakshadweep, Andaman Is. to Japan and southwards Fiji.

***Scolopsis cancellatus* Valenciennes, 1820**

(Fig. 176)

1820. *Scolopsis cancellatus* Valenciennes, *Hist. Nat. Poiss.*, 5 : 351.

1936. *Scolopsis cancellatus* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 7 : 335.

Material examined : Havelock Is. (Ritchi's Archipelago), 19.11.1991, 1 ex., 210 mm, Coll : D. V. Rao, Reg. No. 1745; Mayabunder (North Andaman), 9.1.1992, 2 exs, 100 mm, Coll : D. V. Rao, Reg. No. 1971; North Reef Is. (North Andaman), 2 exs., 176 & 196 mm, Coll : 2211 & 2233.

Diagnostic features : D. X, 9; A. III, 7; P. 16; V. I, 5; L1. 42-43. Depth 2.7-3.0, head 3.1-3.2 in standard length; scales on head beginning between anterior part of eyes; $3\frac{1}{2}$ scale rows between lateral line and median dorsal spines; maxillary smooth; strong spine on posterior margin of sub-orbital bone. Body reddish-brown above, silvery below with 4 margaritaceous bands on upper side of body; axil of pectoral fin black; all fins light yellow.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is., Cocoos-Keeling to Ryukyu Is., New Guinea and Australia.

***Scolopsis ciliatus* (Lacepede, 1802)**

1802. *Holocentrus ciliatus* Lacepede, *Hist. Nat. Poiss.*, 4 : 333, 367.

1984. *Scolopsis ciliatus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 572.

Material examined : Car Nicobar Is., 10.9.1988, 1 ex., 170 mm, Coll : H. S. Mehta & party, Reg. No. 2332; Diglipur (North Andaman), 9.2.1990, 1 ex., 175 mm, Coll : G. C. Rao & party, Reg. No. 2321; Port Blair (South Andaman), 30.7.1991, 1 ex., 164 mm, Coll : D. V. Rao, Reg. No. 1623; Hut Bay (Little Andaman), 27.10.1991, 2 exs., 123 mm, Coll : P. T. Rajan, Reg. No. 1922; Tarmugli Is. (South Andaman), 3.9.1993, 1 ex., 179 mm, Coll : D. V. Rao & party, Reg. No. 2719.

Diagnostic features : D. X. 9; A. III, 7; P.16; V. I, 5; L1. 42-43. Depth 2.6-2.8, head 3.0-3.3 in standard length, eye 2.7-2.8 in head; short backwardly directed, pointed spine below eye; upper posterior edge of maxillary denticulated; caudal fin slightly forked. Body brown above on head and body, silvery on sides and belly; a broad silvery-white band on dorsal side of body, narrowing posteriorly; tip of snout black; longitudinal rows of pale spots along scale rows in middle side of body; all fins dusky; ventral fin hyaline.

Habitat : Found on sandy bottom near reefs.

Distribution : Indo-West Pacific, from Mauritius, coasts of India, Andaman & Nicobar Is., to Ryukyu Is., and New Guinea to Solomon Island.

***Scolopsis dubiosus* Weber, 1913**

1875. *Scolopsis bimaculatus* Day (Nec Ruppell), *Fishes of India*, p. 85, pl. 22. fig. 1.

1913. *Scolopsis dubiosus* Weber, *Siboga Exped.*, 57 (Fishes) : 382.

1984. *Scolopsis dubiosus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 573.

Material examined : Panigbat (South Andaman), 24.4.1991, 1 ex., 210 mm, Coll : Kamla Devi, Reg. No. 2717; Havelock Is. (Ritchie's Archipelago), 19.11.1991, 1 ex., 285 mm, Coll : D. V. Rao, Reg. No. 1744.

Diagnostic features : D. X, 9; A. III, 7; P. 16-17; V. I, 5; L1. 47-48. Depth 3.1, head 2.9 in standard length, eye 3.29-3.4 in head; maxillary smooth; posterior supraocular and temporal region scaly; sub-orbital with strong spine. Body dark on upper side, silvery laterally and below with a broad brownish longitudinal stripe below lateral line; a broad yellow band between eyes behind nostrils; dorsal fin light yellow; caudal fin yellowish, blue along posterior margin and lower edge; other fins hyaline.

Habitat : Found on sandy bottom near reefs.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is., Sri Lanka to Ryukyu Is., and Australia.

***Scolopsis leucotaenia* Bleeker, 1852**

1852. *Scolopsis leucotaenia* Bleeker, *Nat. Tijds. Ned. Indie.*, 3 : 451.

1936. *Scolopsis leucotaenia* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 7 : 329.

Material examined : Rangat Bay (Middle Andaman), 19.8.1991, 1 ex., 197 mm, Coll : K. Chandra & party, Reg. No. 2325.

Diagnostic features : D. X, 9; A. III, 7; P. 16; V. I, 5; L1. 39. Depth 2.74, head 2.84 in standard length, eye 2.52 in head; maxillary smooth; sub-orbital spine slender; scales on head beginning on head between eyes. Body light brownish yellow with a brown band from eye to base of caudal, and second band from head to base of second dorsal.

Habitat : Found around reef areas.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is., to New Guinea and Philippines.

*** *Scolopsis margaritifer* (Valenciennes, 1830)**

1830. *Scolopoides margaritifer* Valenciennes, *Hist. Nat. Poiss.*, 5 : 337.

1936. *Scolopsis margaritifer* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 7 : 328.

Material examined : Hut Bay (Little Andaman), 27.10.1991, 2 exs., 146 mm, Coll : P. T. Rajan, Reg. No. 2192.

Diagnostic features : D. X, 9; A. III, 7; P. 16; V. I, 5; L1. 40. Depth 2.68, head 3.1 in standard length, eye 2.7 in head. Maxillary smooth; sub-orbital spine long and reaching below hind border of pupil; scales on head beginning from front border of eyes. Body greyish-brown on back, silvery white below; scales on upper side with white vertical streaks, middle scales on sides with yellow centers; all fins bluish-grey.

Habitat : Found around coral reefs in shallow areas.

Distribution : Indo-West Pacific, from Andaman Is. to Philippines and New Guinea, Australia to Solomon Island.

***Scolopsis personatus* (Cuvier, 1830)**

1830. *Scolopsis personatus* Cuvier, *Hist. Nat. Poiss.*, 5 : 344.

1993. *Scolopsis personatus* : Rao *et al*, *J. Andaman Sci. Assoc.*, 9 (1 & 2) : 54.

Material examined : Wandoor (South Andaman), 19.8.1992, 2 exs., 245 & 280 mm, Coll : D. V. Rao, Reg. No. 2055; Tarmugli Is. (South Andaman), 3.9.1993, 1 ex., 241 mm, Coll : D. V. Rao & party, Reg. No. 2722.

Diagnostic features : D. X, 9; A. III, 7; P. 17-18; V. I, 5; L1. 45-46. Depth 2.78-2.8, head 3.0-3.1 in standard length, eye 3.1-3.5 in head; maxillary smooth; scales on head beginning above front border of eyes; sub-orbital with strong spine. Body greyish brown above, silvery below with a wide yellowish band from eye to base of caudal fin; all fins light blue, except caudal fin yellow.

Habitat : Found on sandy bottom near reefs.

Distribution : Indo-West Pacific, from Mauritius, Andaman Is. to Ryukyu Is., and New Guinea and Australia.

Family SCIAENIDAE

Body oblong to fairly elongate, slightly compressed, snout rounded or bluntly pointed; mouth terminal or inferior; mental pores conspicuous on snout and at front of lower jaw; barbels some time present on chin; teeth small, sharp; no teeth on vomer, palatines and tongue; canines may be present; lateral line extends to end of caudal fin; two nostrils on each side of snout; opercle with two flat points posteriorly; dorsal fin long and divided by a notch; caudal fin truncate, rounded or rhomboid; scales cycloid or ctenoid; gas bladder well developed.

Key to Genera

- 1a No pores or barbels on chin; gas bladder with 28 or more pairs of appendages ***Otolithus***
- 1b Barbels and pores present or absent; gas bladder with less than 28 pairs of appendages **2**
- 2a Gas bladder carrot-shaped or hammer shaped, its appendages arborescent **3**

- 2b Gas bladder carrot-shaped, its appendages wing like *Pennahia*
3a Gas bladder hammer-shaped; barbels on chin present or absent *Johnius*
3b Gas bladder carrot-shaped; single barbel on chin *Dendrophysa*

Genus *Dendrophysa* Trewavas, 1964

Dendrophysa russelli (Cuvier, 1830)

1830. *Umbrina resseli* Cuvier, *Hist. Nat. Poiss.*, 5 : 178.

1984. *Dendrophysa russelli* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 642, fig. 253.

Material examined : Mayabunder (North Andaman), 15.8.1986, 1 ex., 286 mm, Coll : H. S. Mehta & party, Reg. No. 1581.

Diagnostic features : D. X + I, 27; A. II, 7; P. 18; V. I, 5. Snout rounded and projecting, slightly beyond tip of upper jaw; mouth inferior; teeth of lower jaw uniform, rather strong; a single barbel on chin; gill rakers 8 on lower arm of first arch ; caudal fin rhomboid; swim bladder carrot shaped with 15-17 pairs of arborescent appendages, the first entering head. Body grey on back, white on belly, upper part of spinous dorsal fin dark; other fins pale.

Habitat : Found in shallow coastal waters.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is., Sri Lanka, East Indies to Kwangtung.

Genus *Johnius* Bloch, 1793

Johnius amblycephalus (Bleeker, 1855)

1855. *Umbrina amblycephalus* Bleeker, *Nat. Tijds. Ned Indie.*, 8 : 412.

1986. *Johnius amblycephalus* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 618, fig. 199.5.

Material examined : Car Nicobar Is., 26.9.1988, 1 ex., 142 mm, Coll : H. S. Mehta & party, Reg. No. 1399.

Diagnostic features : D. X + I, 24; A. II, 7; P. 18; V. I, 5; L1. 51. Depth 3.55, head 3.36 in standard length, snout rounded and projecting; mouth inferior; maxilla extending to below hind part of pupil; a barbel on chin with median ventral pore at front of its base; gill rakers 8 on lower arm of first arch; outer teeth of upper jaw enlarged and more widely spaced; caudal truncate; scales on body cycloid; swim bladder hammer shaped with 14 pairs of arborescent appendages, the 1st branching in head. Body dark grey on head and flanks to below level of pectoral fin, silvery on belly; upper part of spinous dorsal fin black; other fins yellowish brown.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-Pacific region.

Genus *Otolithus* Oken, 1817*Otolithus ruber* (Schneider, 1801)

1801. *Johnius ruber* Schneider, in Bloch. & Sch. Syst. Ichth. Bloch, p.75, pl. 17.

1986. *Otolithus ruber* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 619, pl 71.

Material examined : Mayabunder (North Andaman), 14.8.1991, 1 ex., 278 mm, Coll : K. Chandra & party, Reg. No. 1699; 10.1.1992, 1 ex., 262 mm, Coll : D. V. Rao, Reg. No. 2097; Rangat (Middle Andaman), 19.8.1991, 1 ex., 300 mm, Coll : K. Chandra & party, Reg. No. 1909.

Diagnostic features : D. X + I, 30; A. II, 7; P. 17; V. I, 5; L1. 51-53. Depth 3.7-4.2, head 3.6-4.1 in standard length, eye 4.8-5.6 in head, 1.2-1.4 in snout; Body elongate and slender; mouth large and terminal ; lower jaw slightly projecting; interorbital space flat; preopercle scarcely denticulated; opercle with two flat spines; no pores or barbels on chin; a pair of very large canines at front of both jaws; caudal fin rhomboid; swim bladder carrot shaped with 34 pairs of arborescent appendages, not entering head; gill rakers 11 on lower arm of first arch. Body silvery; anal, pectoral and ventral fins yellowish.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Genus *Pennahia* Fowler, 1926*Pennahia macrophthalmus* (Bleeker, 1856)

1856. *Otolithus macrophthalmus* Bleeker, *Veth, Batav. Gen.*, 23 : 16.

1984. *Pennahia macrophthalmus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 669, fig. 270.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 2 exs., 210 & 220 mm, Coll : G. C. Rao & party, Reg. No. 1615; Mayabunder (North Andaman), 17.8.1991, 3 exs., 207-250 mm, Coll : K. Chandra & party, Reg. No. 1712; 10.1.1992, 2 exs., 240 & 260 mm, Coll : D. V. Rao, Reg. No. 1848.

Diagnostic features : D. X+I, 23-24; A. II, 7-8; P. 16-18; V. I, 5; L1. 29-52. Mouth large, terminal and oblique; no canines; 2 or 3 pairs of pores on front of chin, the first pair separated by symphysis of lower jaw; swim bladder carrot shaped, its appendages wing like without a dorsal limb; caudal fin truncate. Body grey above, flanks and belly silvery; upper half of spinous dorsal dusky; diffused blotch on pectoral fin axil.

Habitat : Found in coastal waters.

Distribution : Indo-West Pacific, from Pakistan, coasts of India, Andaman Is., Sri Lanka, East Indies to China.

Family MULLIDAE

Body oblong, moderately compressed with two long unbranched barbels on chin; mouth small and protractile; teeth in one or several series in jaws; scales ctenoid and large; eyes situated near dorsal profile of head; spinous and soft dorsal fins widely separated; ventral fins inserted below pectoral fins; caudal fin forked.

Key to Genera

- 1a Villiform teeth in several series on jaws; vomer and palatines; 2nd dorsal and anal fins scaly *Upeneus*
- 1b Villiform or conical teeth on jaws only; none on vomer and palatines; 2nd dorsal and anal fins not scaly 2
- 2a Villiform teeth in 1-3 rows; 4-5 scales between 1st and 2nd dorsal fins; 12 vertical scale rows along upper part of caudal peduncle *Mulloides*
- 2b Teeth conical, strong and in one row only; 2-3 scales between 1st and 2nd dorsal fins; 8-9 rows of scales along upper part of caudal peduncle *Parupeneus*

Genus *Mulloides* Bleeker, 1849

Mulloides flavolineatus (Lacepede, 1801)

1801. *Mullus flavolineatus* Lacepede, *Hist. Nat. Poiss.*, p. 348.

1986. *Mulloides flavolineatus* : Ben-Tuvia, in Smith & Heemstra, *Smith's Sea Fishes*, p. 610, pl. 69.

Material examined : Nancowry Is. (Nicobar Group), 10.2.1993, 1 ex., 256 mm, Coll : D. V. Rao & party, Reg. No. 2503.

Diagnostic features : D. VII + I, 8; A. I, 6; P.18; V. I, 5; L1. 34. Depth 4.4, head 3.4 in standard length; villiform teeth in jaws; palatine and vomer edentate; 5 scales between 1st and 2nd dorsal fins. Body silvery-white with bright yellow longitudinal band from eye to caudal; small dark blotch below 1st dorsal.

Habitat : Found around coral reefs in outer reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Australia and New Guinea.

Genus *Parupeneus* Bleeker, 1836

Key to Species

- 1a Dark longitudinal band from snout or eye to below 2nd dorsal; round black blotch on caudal peduncle centered on lateral line 2
- 1b No dark longitudinal band; no dark blotch on caudal peduncle, if present, above lateral line 3

- 2a Barbels much longer than snout plus eye; dark blotch at mid point of caudal peduncle *P. macronema*
- 2b Barbels shorter than or equal to snout plus eye; dark blotch close to end of caudal peduncle *P. barberinus*
- 3a Large oval dark blotch on side of caudal peduncle; yellowish oblong blotch from below mid 1st dorsal to front of 2nd dorsal above lateral line *P. indicus*
- 3b No blotch on sides of caudal peduncle; no light blotch on sides of body 4
- 4a Black vertical bar below each dorsal fin; body depth greater than head length; barbels reach rear edge of preopercle *P. bifasciatus*
- 4b No vertical bars; depth not greater than head length; barbels extend well past preopercle 5
- 5a Barbels reach base of ventrals, their length less than 1.2 in head *P. cyclostomus*
- 5b Barbels reach slightly beyond rear edge of preopercle; their length more than 1.2 in head .. 6
- 6a Large dark blotch on lateral line below interdorsal space; base of 2nd dorsal fin blackish; body depth above 3.4 in SL..... *P. pleurostigma*
- 6b No dark blotch on lateral line; body depth less than 3.4 in SL; sides with faint yellow longitudinal band; small reddish-brown spot below lateral line beneath 7-8th dorsal spines *P. cinnabarinus*

***Parupeneus barberinus* (Lacepede, 1801)**

(Fig. 177)

1801. *Mullus barberinus* Lacepede, 1801. *Hist. Nat. Poiss.*, 3 : 386, pl. 13, fig. 2.

1986. *Parupeneus barberinus* : Ben-Tuvia, in Smith & Heemstra, *Smith's Sea Fishes*, p. 611, pl. 69.

Material examined : Mayabunder (North Andaman), 15.8.1991, 1 ex., 285 mm, Coll : K. Chandra & party, Reg. No. 1678; Tarmugli Is. (South Andaman), 1 ex., 243 mm, Coll : D. V. Rao & party, Reg. No. 2586.

Diagnostic features : D. VIII + I, 8; A. I, 6; P. 16-18; V. I, 5; L1. 28. Depth 3.2-3.48, head 2.8-2.96 in standard length, eye 4.0-4.35 in head; teeth on jaws stout and one row only; 2nd dorsal spine flexible. Body dusky tan, sides and below white; a black stripe from front of snout through eye to upper caudal peduncle; a large black spot at caudal base.

Habitat : Found on sandy-rubble bottom near reefs.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Japan, and Australia to Hawaiian Islands.

***Parupeneus bifasciatus* (Lacepede, 1801)**

1801. *Mullus bifasciatus* Lacepede, *Hist. Nat. Poiss.*, p. 383, 404.

1986. *Parupeneus bifasciatus* : Ben-Tuvia, in Smith & Heemstra, *Smith's Sea Fishes*, p. 611, pl. 69.

Material examined : Outram Is. (Ritchie's Archipelago), 2.3.1994, 1 ex., 185 mm, Coll : D. V. Rao & party, Reg. No. 2531; Narcondam Is.(North Andman), 14.3.1994, 1 ex., 259 mm, Coll : D. V. Rao Reg. No. 2523.

Diagnostic features : D. VIII + I, 8; A. I, 6; P. 17; V. I, 5; L1. 28. Depth 3.1-3.2, head 3.2-3.25 in standard length, eye 3.7-3.75 in head; dorsal profile of head slightly concave; 12 predorsal scales; 2 interdorsal scale rows. Body light reddish-yellow above, white below; two dark bars dorsally on body, one beneath each dorsal fin; a dark patch on snout covering eye; all fins reddish.

Habitat : Found around coral reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Ryukyu Is., and Australia to Society Island.

***Parupeneus cinnabarinus* (Cuvier, 1829)**

(Fig. 178)

1829. *Upeneus cinnabarinus* Cuvier, *Hist. Nat. Poiss.*, 4 : 475.

1986. *Parupeneus cinnabarinus* : Ben-Tuvia, in Smith & Heemstra, *Smith's Sea Fishes*, p. 611, pl. 69.

Material examined : Bambooflat (South Andaman), 30.9.1992, 1 ex., 187 mm, Coll : P. T. Rajan, Reg. No. 2194; Tarmugli Is. (South Andaman), 3.9.1993, 2 exs., 210 & 267 mm, Coll : D. V. Rao & party, Reg. No. 2749.

Diagnostic features : D. VIII + I, 8 ; A. I, 6; A. I, 6; P. 16-17; V. I, 5; L1. 28-29. Depth 3.0-3.5, head 3.1-3.3 in standard length, eye 4.5 in head; barbels extending to hind margin of operculum; dorsal profile of head evenly convex. Body yellowish on back; scales with a pale blue spot; silvery white on sides and ventrally; a small reddish spot below lateral line, beneath mid-base of 1st dorsal.

Habitat : Found on silty-sand areas near reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Australia and Marshall Island.

***Parupeneus cyclostomus* (Lacepede, 1801)**

1801. *Mullus cyclostomus* Lacepede, *Hist. Nat. Poiss.*, p. 383, 404.

1986. *Parupeneus cyclostomus* : Ben-Tuvia, in Smith & Heemstra, *Smith's Sea Fishes*, p. 612, pl. 69.

Material examined : Wandoor (South Andaman), 19.8.1992, 2 exs., 380 mm, Coll : D. V. Rao, Reg. No. 1958.

Diagnostic features : D. VIII + I, 8; A. I, 6; P. 16; V. I, 5; L1. 27. Depth 3.59, head 3.0 in standard length, eye 7.1 in head; barbels extending to end of head; inter-dorsal scale rows 3. Body yellowish-grey with blue markings on scales; a light yellow saddle-like spot on caudal peduncle.

Habitat : Found around shallow coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Ryukyu is. and Australia.

***Parupeneus indicus* (Shaw, 1803)**

(Fig. 179)

1803. *Mullus indicus* Shaw, *General Zoology*, 4 : 614.

1986. *Parupeneus indicus* : Ben-Tuvia, in Smith & Heemstra, *Smith's Sea Fishes*, p. 612, pl. 69.

Material examined : Little Andaman, 22.9.1990, 2 exs., 53 & 102 mm, Coll : K. V. Raman & party, Reg. No. 2996; Port Blair (South Andaman), 8.10.1992, 1 ex., 116 mm, Coll : D. V. Rao, Reg. No. 2746; Tarmugli Is. (South Andaman), 2.9.1993, 1 ex., 223 mm, Coll : D. V. Rao & party, Reg. No. 2747.

Diagnostic features : D. VIII + I, 8; A. I, 6; P. 15-16; V. I, 5; L1. 26-28. Depth 3.38-3.6, head 2.9-3.1 in standard length, eye 3.8-5.2 in head; barbels extending slightly behind hind margin of preoperculum. Body brownish-white above. Silvery white below; a horizontally elongate yellow spot on middle of back centered on lateral line; a black spot posteriorly on caudal peduncle; upper part of head with light blue lines; fins hyaline.

Habitat : Found on sandy bottom near coral rubble.

Distribution : Indo-West Pacific, from east coast of Africa to Japan and Australia to Samoa Island.

***Parupeneus macronema* (Lacepede, 1801)**

1801. *Mullus macronema* Lacepede, *Hist. Nat. Poiss.*, p. 383, 404, pl. 13, fig. 2.

1986. *Parupeneus macronema* : Ben-Tuvia, in Smith & Heemstra, *Smith's Sea Fishes*, p. 612, pl. 69.

Material examined : Mayabunder (North Andaman), 9.1.1992, 2 exs., 277 mm, Coll : D. V. Rao, Reg. No. 1921; Bambooflat (South Andaman), 14.9.1992 1 ex., 215 mm, Coll : P. T. Rajan, Reg. No. 2009.

Diagnostic features : D. VIII + I, 8; A. I, 6; P. 18; V. I, 5; L1. 32. Depth 3.5-3.55, head 3.1-3.15 in standard length, eye 4.8-5.1 in head; barbels extending to opercular margin; last ray of 2nd dorsal elongate, extending to margin of caudal peduncle. Body dark-red above, sides and belly whitish; a broad black horizontal stripe from snout through eye to end of 2nd dorsal fin level; large black spot on caudal peduncle; soft dorsal with black basal band.

Habitat : Found near reef areas in shallow waters.

Distribution : Indian Ocean , from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Java.

***Parupeneus pleurostigma* (Bennett, 1831)**

1831. *Upeneus pleurostigma* Bennett, *Proc. Zool. Soc., London*, p. 59.

1986. *Parupeneus pleurostigma* : Ben-Tuvia, in *Smith & Heemstra, Smith's Sea Fishes*, p. 612, pl, 69.

Material examined : Port Blair (South Andaman), 30.7.1991, 2 exs., 188 & 191 mm, Coll : D. V. Rao, Reg. No. 1681; Bambooflat (South Andaman), 30.9.1992, 1 ex., 187 mm, Coll : P. T. Rajan Reg. No. 2194.

Diagnostic features : D. VIII + I, 8; A. I, 6; P.19; V. .I.,5; L1. 30. Depth 3.65, head 3.2 in standard length, eye 4.95 in head; upper profile of head straight; last dorsal ray longer; the 3rd and last anal rays longer. Body pinkish-dusky above, lighter below with a black blotch on lateral line beneath rear of 1st dorsal fin, behind this a large oval white spot; base of second dorsal fin black.

Habitat : Found on sandy-rubble bottom.

Distribution : Indo-West Pacific, from east coast of Africa to Australia.

Genus *Upeneus* Cuvier, 1849

Key to Species

- 1a Inter dorsal scales 3-4; body with dark brown longitudinal stripes from snout to caudal; dark oblique bands on caudal lobes ***U. tragula***
- 1b Inter dorsal scales 5-6; no dark stripe or blotches on body 2
- 2a Barbels extend beyond rear edge of opercle; no oblique bars on caudal fin ***U. sulphureus***
- 2b Barbels do not reach rear edge of opercle; oblique bars on both or upper lobe of caudal fin 3
- 3a A bright yellow band from eye to caudal peduncle; oblique bars on upper lobe of caudal fin ***U. moluccensis***
- 3b Three to 4 light yellow bands on sides; both caudal fin lobes with black bars; tip of spinous dorsal fin black ***U. vittatus***

***Upeneus moluccensis* (Bleeker, 1855)**

1855. *Upenoides moluccensis* Bleeker, *Nat. Tijds. Ned. Indie.*, 8 : 409.

1984. *Upeneus (Upeneus) moluccensis* : Talwar & Kacker, *Commercial sea Fishes of India*, p. 683, fig. 277.

Material examined : Port Blair (South Andaman), 30.7.1991, 1 ex., 185 mm, Coll : D. V. Rao, Reg. No. 1888; Chouldari (South Andaman), 14.10.1992, 2 exs., 154 & 178 mm, Coll : Kamla Devi, Reg. No. 2998.

Diagnostic features : D. VIII + I, 8; A. I, 6; P. 16; V. I, 5; L1. 38. Depth 3.66, head 2.9 in standard length, eye 4.45 in head; teeth in several rows in jaws; vomer and palatines toothed; barbels stout; 5 scale rows between two dorsals. Body reddish-brown, sides and belly white; distinct yellow horizontal band on sides of body; dorsal fin yellow with 3 horizontal stripes; anal fin whitish; upper lobe of caudal fin with cross bars.

Habitat : Found on silty-sand areas in shallow areas.

Distribution : Indo-West Pacific, east coast of Africa, Gulf of Oman, coasts of India, Andaman Is., East Indies, Philippines to Japan and Australia.

***Upeneus sulphureus* Cuvier, 1829**

1829. *Upeneus sulphureus*. Cuvier, *Hist. Nat. Poiss.*, 3 : 450.

1986. *Upeneus sulphureus* : Ben-Tuvia, in Smith & Heemstra, *Smith's Sea Fishes*, p. 613, pl. 70.

Material examined : Port Blair (South Andaman), 31.7.1993, 5 exs., 75-95 mm, Coll : D. V. Rao, Reg. No. 2744.

Diagnostic features : D. VIII + I, 8; A. I, 7; P. 16; V. I, 5; L1. 38. Depth 3.55-3.65, head 3.2-3.35 in standard length, eye 3.4-3.6 in head; barbels thin, extend beyond rear edge of operculum; preorbital scales absent. Body greyish-bronze, head reddish, lower sides and belly whitish yellow; two yellowish horizontal stripes on sides; tip of 1st dorsal fin black; no bars on caudal and anal fins.

Habitat : Found on sandy areas near reefs in large numbers.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, coasts of India, Andaman Is., Sri Lanka to Japan and Marshall to Fiji Islands.

***Upeneus tragula* Richardson, 1846**

(Fig. 180)

1846. *Upeneus tragula* Richardson, *Ichth. China and Japan.*, p. 220.

1986. *Upeneus tragula* : Ben-Tuvia, in Smith & Heemstra, *Smith's Sea Fishes*, p. 613, pl. 70.

Material examined : Chidiyatapu (South Andaman), 23.8.1987, 2 exs., 145 mm, Coll : H. S. Mehta & party, Reg. No. 2010; Mayabunder (North Andaman), 11.1.1992, 2 exs., 85 & 125 mm, Coll : D. V. Rao, Reg. No. 1918; Bambooflat (South Andaman), 30.11.1992, 2 exs., 220 mm, Coll : P. T. Rajan, Reg. No. 2140; Tarmugli Is. (South Andaman), 3.9.1993, 1 ex., 226 mm, Coll : D. V. Rao & party, Reg. No. 2750.

Diagnostic features : D. VIII + I, 8; A. I, 6; P. 13-14; V. I, 5; L1. 32-33. Depth 3.8-3.9, head 3.5-3.6 in standard length, inter dorsal scale rows 3-4. Body brown with reddish patches on head and

body, lighter below; a black brown horizontal stripe from snout to base of caudal fin; ventral part of body with large reddish blotches; barbels yellow; a large reddish area on outer part of 1st dorsal; caudal fin lobes with brown cross bars.

Habitat : Found on silty-sand areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Andaman Is, and Indonesia to Japan and Australia to Palau Island.

***Upeneus vittatus* (Forsskal, 1775)**

1775. *Mullus Vittatus* Forsskal, *Descript. Animal*, p. 31.

1986. *Upeneus vittatus* : Ben-Tuvia, in Smith & Heemstra, *Smith's sea Fishes*, p. 613, pl. 70.

Material examined : Hut Bay (Little Andaman), 22.9.1990, 1 ex., 140 mm, Coll : K. V. Raman & party, Reg. No. 1919; Port Blair (South Andaman), Reg. No. 1622; Chouldari (South Andaman), 14.9.1992. 1. ex., 226 mm, Coll : Kamla Devi, Reg. No. 2997; Nancowry Is. (Nicobar Group), 10.2.1993, 1 ex., 136 mm, Coll : D. V. Rao & party, Reg. No. 2309; North Reef Is. (North Andaman), 26.3.1993, 2 exs., 121 & 128 mm, Coll : G. C. Rao & party, Reg. No. 2751.

Diagnostic features : D. VIII + I, 8; A. I, 7; P. 15-16; V. I, 5; L1. 34-36. Depth 3.65-3.8, head 3.3-3.42 in standard length. Barbels reaching to hind margin of preoperculum; preorbital scales absent. Body light grey on back, sides and belly yellowish; 3 light yellow bands on sides; spinous dorsal with two bands, the tip black; soft dorsal with 3 bars; caudal fin lobes with dark black bars.

Habitat : Found on silty-sand areas in shallow waters.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman & Nicobar Is., Sri Lanka to Japan and Australia to Marquesas Island.

Family MONODACTYLIDAE

Body deep and compressed; scales small, deciduous, extending onto median fins and head; dorsal and anal spines reduced; ventral fins absent; teeth conical or flattened; maxilla exposed; upper jaw slightly protrusile.

Genus *Monodactylus* Lacepede, 1800

***Monodactylus argenteus* (Linnaeus, 1758)**

(Fig. 181)

1758. *Chaetodon argenteus* Linnaeus, *Syst. Nat. ed.* 10, 1 : 272.

1986. *Monodactylus argenteus* : Heemstra in Smith & Heemstra, *Sea Fishes*, p. 607, fig. 193.1.

Material examined : Diglipur (North Andaman), 26.2.1990, 1 ex., 172 mm, Coll : G. C. Rao & party, Reg. No. 1417; Havelock Is. (Ritchie's Archipelago), 20.11.1991, 1 ex., 154 mm, Coll : D. V.

Rao, Reg. No. 1729; Port Blair (South Andaman), 31.7.1993, 1 ex., 104 mm, Coll : D. V. Rao, Reg. No. 2991.

Diagnostic features : D. VIII. 28; A. III, 20-30; P.16; L1. 54-56. Depth 1.29-1.3, head 2.3-2.9 in standard length eye 2.1-2.68 in head; body deep and compressed; scales deciduous and extending onto head and median fins; lobes of dorsal and anal fins prolonged; ventral fins rudimentary. Juveniles silvery with two curved dark strips across head, the first through eye and the second from nape through base of pectoral to before anal; anterior lobes of dorsal and anal fins dusky; all fins pale. Adults silvery with anterior lobes of dorsal and anal fins dusky.

Habitat : Found in sandy areas near reefs.

Distribution : Wide spread in Indo-West Pacific region.

Family PEMPHERIDAE

Small to moderate sized fishes. Body compressed, oblong; scales moderate, cycloid or ctenoid, deciduous or not; lateral line extending well out on caudal fin; except snout entire head and body scaly; mouth large and terminal, the lower jaw projecting; preorbital narrow; no supra-maxilla; eyes large; jaws with conical teeth; palate and vomer dentate; dorsal fin single, shorter than anal fin; caudal fin truncate to slightly forked.

Genus *Pempheris* Cuvier, 1829

Key to Species

- 1a Teeth in jaws smaller; mandibular teeth not forwarded; pectorals without basal dark patch; dorsal with apical dark patch..... *P. vanicolensis*
- 1b Teeth in jaws relatively strong; mandibular teeth partly directed outwards; pectorals with a basal blackish spot; apical part of dorsal conspicuously black *P. oualensis*

Pempheris vanicolensis Cuvier, 1831

1831. *Pempheris vanicolensis* Cuvier *Hist. Nat. Poiss.*, 7 : 305.

1984. *Pempheris vanicolensis* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 692.

Material examined : North Reef Is. (North Andaman), 25.3.1993, 2 exs., 151 mm, Coll : G. C. Rao & party, Reg. No. 2344; Tarmugli Is. (South Andaman), 3.9.1993, 1 ex. 191 mm, Coll : D. V. Rao & party; Reg. No.2761; Kamorta Is. (Nicobar Group), 9.2.1993, 1 ex., 160 mm, Coll.: D. V. Rao & party, Reg. No. 2317.

Diagnostic features : D. VI, 6; A. III, 39; P. 18; V. I, 5; L1. 69-71. Depth 2.2-2.34 in standard length, eye 2.4-2.7 in head; no forward directed tooth in lower jaw; preopercle spiny. Body dark coppery-brown above, silvery below; dorsal fin with black tip; anal and caudal fin margin black.

Habitat : Found around coral reefs.

Distribution : Indo-West Pacific, from Mauritius, Sri Lanka, Andaman & Nicobar Is. to Philippines.

*** *Pempheris oualensis* Cuvier, 1831**

1831. *Pempheris oualensis* Cuvier, *Hist. Nat. Poiss.*, 7: 299.

1980. *Pampheris oualensis* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 356, fig. 303.

Material examined : Katchal Is. (Nicobar Group), 11.2.1993, 1 ex., 145mm, Coll : D. V. Rao & party, Reg. No. 2343.

Diagnostic features : D. VI, 9; A. III, 42; P.18; V. I, 5; L1. 62. Depth 2.3, head 3.56 in standard length; 8 scales above lateral line; teeth conspicuous, lower jaw with outward directed teeth; caudal fin slightly forked. Body dark brown above, shading to coppery on sides and ventrally; tip and edge of dorsal fin broadly black; caudal fin black posteriorly; a dark bar at pectoral fin base.

Habitat : Found around coral reefs.

Distribution : Indo-West Pacific, from eastern Indian Ocean to Australia and Samoa Island.

Family TOXOTIDAE

Body deep and laterally compressed; head pointed and flat above; mouth large, lower jaw protruding; eyes large; dorsal fin inserted far back on body; dorsal fin base considerably shorter than soft anal fin base; dorsal and anal fins scaly.

Genus *Toxotes* Cuvier, 1817

Key to Species

- 1a Dorsal fin with 4 spines; 4-5 black bars on upper sides of body *T. jaculator*
- 1b Dorsal fin with 5 spines; series of 6-7 alternating large and small black spots on upper sides of body *T. chatareus*

***Toxotes chatareus* (Ham.-Buch., 1822)**

1822. *Coius chatareus* Ham. - Buchanan, *Fishes of Ganges*, p. 101, pl. 14, fig. 3.

1991. *Toxotes chatareus* : Talwar & Jhingran, *Inland Fishes of India And Adjacent Countries*, 2 : 871, fig. 263.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 196 mm, Coll : G. C. Rao & party, Reg. No. 1911.

Diagnostic features : D. V. 12; A. III, 16; P. 13; V.I, 5; L1. 33; Ltr. 5 + 11. Depth 2.2, head 2.5 in standard length; body oblong and compressed. Body pale grey with a series of 6 alternating large and small black blotches; all fins dusky.

Habitat : Found in creeks and back waters.

Distribution : Indo-West Pacific, from coasts of India to Australia.

***Toxotes jaculator* (Pallas, 1766)**

1766. *Sciæna jaculator* Pallas, *spicilegia. Zoologica.*, p. 186.

1991. *Toxotes jaculator* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2: 871, fig. 263,a.

Material examined : Port Blair (South Andaman), 12.2.1998, 2 exs., 50 & 70 mm, Coll : M. K. Dev Roy & party, Reg. No. 1910; Diglipur (North Andaman), 15.2.1990, 1 ex 200 mm, Coll : G. C. Rao & party, Reg. No. 1914; Hobday Is. (South Andaman), 13.2.1991, 1 ex., 247 mm, Coll: K. V. Raman & party, Reg. No. 1592.

Diagnostic features : D. IV, 11-12; A. III, 16; P. 15; V. I, 5; L1. 28-30; Ltr. 4 + 8 - 9. Depth 2.3-2.4, head 2.4-2.65 in standard length; head flattened on dorsal surface; dorsal and anal fins scaly; body pale with series of 4-5 black blotches on upper side; dorsal and anal fins dusky.

Habitat : Found in creeks, back waters and streams.

Distribution : Indo-West Pacific, from coasts of India to Solomon Island.

Family KYPHOSIDAE

Body oval and compressed with blunt snout; mouth small; maxilla scally; jaw with single row of fixed incisor-like teeth with long roots; minute teeth on palate; single dorsal fin, depressible in a sheath; preopercle weakly serrate; caudal fin forked; scales ctenoid, covering head, body and fins.

Genus *Kyphosus* Lacepede, 1802

Key to Species

- 1a Base of soft dorsal shorter than base of spinous dorsal; 12 dorsal rays; lateral line scales above 60 ***K. cinerascens***
- 1b Base of soft dorsal equal to or slightly longer than base of spinous dorsal; 14 dorsal rays; lateral line scales 53-55 ***K. lembus***

*** *Kyphosus lembus* (Cuvier, 1831)**

1831. *Pimelepterus lembus* Cuvier, in Cuv. & Val., *Hist. Nat. Poiss.*, 7 : 201.

1936. *Kyphosus lembus* : Weber & de Deau fort, *Fishes of Indo-Australian Archipelago*, 7 : 226.

Material examined : Katchal Is. (Nicobar Group), 14.2.1993, Coll : D. V. Rao & party, Reg. No. 2347.

Diagnostic features : D. X. 14; A. III; 13; P. 19; V. I. 5; L1. 54; Ltr. 11 + 1 + 16. Depth 2.2, head 3.0 in standard length; dorsal and ventral profiles evenly arched; preorbital naked; maxilla reaching front border of eye; operculum with blunt point; pectorals slightly shorter than head without snout; caudal fin emarginate. Body uniform grey, slightly darker above ; sides with alternating dark and light longitudinal bands along scale rows.

Habitat : Found near reef areas in deep waters.

Distribution : Indo-West Pacific, from Andaman Is. to Japan, New Hebrides and Solomon Islands.

***Kyphosus cinerascens* (Forsskal, 1775)**

1775. *Sciaena cinerascens* Forsskal, *Descript. Animal* p. 53.

1986. *Kyphosus cinerascens* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 603, pl. 68, fig. 189 : 2.

Material examined : Wrightmyo (south Andaman), 4.2.1989, 1 ex., 200 mm, Coll : H. S. Mehta & party, Reg. No. 1908; Havelock Is. (Ritchie's Archipelago), 19.11.1991, 2 exs., 230 & 245 mm, Coll : D. V. Rao, Reg. No. 1731.

Diagnostic features : D. XI, 12; A. III, 11 ; P.18; V. I, 5; L1. 63-65. Depth 2.34-2.6, head 3.2-3.6 in standard length; distinct bulge above nostrils; maxillary scaly; base of soft dorsal fin shorter than anal fin base; gill rakers 18-20 on lower arm of first arch. Body silvery grey, dark above; scales with yellow centers; a silvery band below eye; all fins dusky.

Habitat : Found around rocks near reefs in open waters.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is. to Japan and Marshall to Hawaiian Islands, and Australia to Fiji.

Family EPHIPPIDAE

Body deep and compressed; scales ctenoid or cycloid, extend onto top of head; mouth small; markedly or weakly protractile; no teeth on vomer or palatines; pectoral fins falcate or rounded.

Key to Genera

- 1a Dorsal fin spines 5; pectoral fin shorter than head and rounded..... ***Platax***
- 1b Dorsal fin spines 8-9; pectoral fin longer than head and falcate ***Drepane***

Genus *Drepane* Cuvier, 1831*Drepane punctata* (Linnaeus, 1758)

1758. *Chaetodon punctata* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 273.

1984. *Drepane punctata* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 697, fig. 283.

Material examined : Mayabunder (North Andaman), 10.1.1992, 1 ex., 156 mm, Coll : D. V. Rao, Reg. No. 2100; Port Blair (South Andaman), 31.7.1993, 1 ex., 82 mm, Coll : D. V. Rao, Reg. No. 2794.

Diagnostic features : D. IX, 20-22; A, III, 18-19; P.18; V. I, 5; L1. 47-48. Depth 1.16-1.26, head 2.3-2.8 in standard length; body and head deep, strongly compressed; mouth protrusible; fringe of 4-10 short cirri on chin; dorsal fin deeply notched; pectoral fin long and pointed, reaching to base of caudal fin. Body silvery grey with 6-10 vertical bands of small black spots present on upper half.

Habitat : Found in reef and shallow coastal areas.

Distribution : Indo-West Pacific, from Pakistan, coasts of India, Andaman Is. to China Sea.

Genus *Platax* Cuvier, 1816*Key to Species*

- 1a Snout convex; chin with 5 mandibular pores each side; vertical band through eye is not solid black, but of series of vermiculations; ventrals not black *P. orbicularis*
- 1b Snout concave before eyes; chin with 3-4 mandibular pores on each side; body with three solid black bars; ventral black *P. pinnatus*

Platax orbicularis (Forsskal, 1775)

1775. *Chaetodon orbicularis* Forsskal *Descript. Animal*, p. 59.

1986. *Platax orbicularis* : Smith in Smith & Heemstra, *Smith's sea Fishes*, p. 605, fig. 192.1.

Material examined : Smith Is. (North Andaman), 14.2.1990, 5 exs., 110-113 mm, Coll : G. C. Rao & party, Reg. No. 1942; Rutland Is. (South Andaman), 25.2.1995, 1 ex., 52 mm, Coll : G. C. Rao & party, Reg. No. 2949.

Diagnostic features : D. V. 36; A. III, 26; P. 18; V. I, 5; L1. 52. Body orbiculate; snout convex; chin with 5 mandibular pores on each side; interorbital naked; dorsal and anal fins broad. Body brownish yellow with a vertical black bar through eye and another at the level of pectoral fin; dorsal and anal fins with black margin; caudal fin hyaline.

Habitat : Found on sandy bottom near reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India to Japan and Australia to Tuamotu.

***Platax pinnatus* (Linnaeus, 1758)**

1758. *Chaetodon pinnatus* Linnaeus. *Syst. Nat.*, 1 : 272.

1986. *Platax pinnatus* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 605, fig. 192.2.

Material examined : Port Blair (South Andaman), 23.10.1989, 1 ex., 178 mm, Coll : B. Mitra & party, Reg. No. 2380; Mayabunder (North Andaman), 15.8.1991, 1 ex., 160 mm, Coll : K. Chandra & party, Reg. No. 1673.

Diagnostic features : D. V. 37; A, III, 27; P. 18; V. I, 5. Body deep and compressed, mouth profile pointed; snout concave before eyes; chin with 4 mandibular pores on each side; dorsal and anal fins much elongated. Body silvery grey with dark vertical black bars, one through eye, the other at the level of pectoral extending onto ventral ; pectoral fin black basally, yellow distally; ventral fins black.

Habitat : Found in weedy areas near reefs.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is. to Japan and Australia.

Family SCATOPHAGIDAE

Body deep and angular, compressed with minute ctenoid scales; no spines or serrae on head bones; mouth small with bands of setiform, slender, tricuspid movable teeth; vomer and palatines edentate; scales extending onto soft dorsal and anal fins; lateral line complete.

Genus *Scatophagus* Cuvier, 1831

***Scatophagus argus* Linnaeus, 1766**

(Fig. 182)

1766. *Chaetodon argus* Linnaeus, *Syst. Nat.*, ed. 12, 1 : 464.

1984. *Scatophagus argus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 704, fig. 286.

Material examined : Chidiyatapu (South Andaman), 23.8.1987, 1 ex., 79 mm, Coll : H. S. Mehta & party, Reg. No. 2087; Diglipur (North Andaman), 26.2.1990, 3 exs., 130-167 mm, Coll : G. C. Rao & party, Reg. No. 1468; Mayabunder (North Andaman), 10.11.1992, 1 ex., 150 mm, Coll : D. V. Rao & party, Reg. No. 2098; Port Blair (South Andaman), 31.7.1993, 1 ex., 155 mm, Coll : D. V. Rao & party, Reg. No. 2995.

Diagnostic features : D. XI, 16-18; A. IV, 14; P. 16; V. I, 5. Body deep and angular, compressed, squarish in outline with triangular head projecting anteriorly, mouth very small; scales ctenoid; a procumbent spine present before dorsal fin; dorsal fin notched; caudal truncate. Body bluish or greenish-grey to dusky brown above, silvery ventrally; numerous irregular large round brown spots on body except breast and belly, these spots may extend onto the soft dorsal fin; all fins slightly dusky.

Habitat : Found in creeks and back waters.

Distribution : Indo-West Pacific, from coasts of India to Queensland.

Family CHAETODONTIDAE

Body deep and strongly compressed; mouth small and protractile; teeth long, slender and bristle-like, none on vomer and palatines; preopercle without a large spine at the angle; no spines on head; dorsal fin continuous; dorsal and anal fins covered with scales; anal fin truncate or rounded; scales ctenoid most species are associated with coral reefs and having striking colour pattern.

Key to Genera

- 1a Fourth dorsal spine elongated, filamentous; body overall white with 2-3 broad oblique dark brown bands ***Heniochus***
- 1b Fourth dorsal spine not elongated; body yellow, grey-brown, black blue-white with bands, spots and blotches, etc. ***Chaetodon***

Genus ***Chaetodon*** Linnaeus, 1758

Key to Species

- 1a Anal fin IV, 16-17; body yellow with an elongate blue patch on upper sides and large black spot on caudal base ***C. plebeius***
- 1b Anal fin III, 16-23; body colouration not as in 1a 2
- 2a Anal fin with III, 16-18; body with small dark spots extending onto dorsal and anal; black vertical bars in middle of caudal fin ***C. guttatissimus***
- 2b Anal fin with III, 18-20; colour not as in 2a 3
- 3a Dorsal fin with XI-XII spines; body with alternating cream and grey-brown chevron shaped narrow bars on sides; a dark purplish bar with pale edges across fin; three dark bars on head ***C. triangulum***
- 3b Dorsal fin with XII-XIV spines; colour pattern not as in 3a 4
- 4a Dorsal fin with XII spines 5
- 4b Dorsal fin with XIII-XIV spines 8
- 5a Lateral line scales 44-48; body blue-white with oblique black bands on sides; yellow edged black bars on snout; median fins yellow with black submarginal bands ***C. meyeri***
- 5b Lateral line scales 28-40; body colour pattern not as in 5a 6
- 6a Snout equal to eye; body olive brown; scale centers pale; a black bar through eye; a narrow brown band on snout; ventral fin black; caudal fin scarlet basally and a black band in the middle ***C. collare***

- 6b Snout longer than eye; colour not as in 6a 7
- 7a Body with 2 triangular black blotches dorsally and several vertical black lines; black band around caudal peduncle *C. falcula*
- 7b Body yellowish with a series of vertical black lines across sides; broad black band along base of soft dorsal to base of posterior anal rays; median fins bright yellow *C. lineolatus*
- 8a Anterior dorsal rays prolonged into a filament 9
- 8b Anterior dorsal rays not prolonged 10
- 9a Body white, yellow posteriorly with a large black spot on soft dorsal fin; a pattern of dark chevron markings on sides of body *C. auriga*
- 9b Body yellowish-grey with a large black area on back and adjacent to dorsal fin, bordered below by white, short narrow black bar through eye *C. ephippium*
- 10a Dorsal fin rays 20-22; body with several narrow dark sub-horizontal purplish stripes; broad yellow edged black bands on base of dorsal and anal fins and across middle of caudal fin; snout black *C. fasciatus*
- 10b Dorsal fin rays 23-26 11.
- 11a Lateral line scales 35 and above; body yellow on lower half, brownish on upper half; a series of oblique reddish brown bands on sides; curved broad yellow edge black band from head to base of middle dorsal spines; black spot at base of caudal *C. lunula*
- 11b Lateral line scales 31-33; body yellowish with pattern of dark chevron markings on sides; dorsal and anal fins blackish posteriorly, the margin white; the blackish colour extending posteriorly as a broad vertical band *C. vagabundus*

***Chaetodon auriga* Forsskal, 1775**

(Fig. 183)

1775. *Chaetodon auriga* Forsskal, *Descript. Animal*, p. 60.

1986. *Chaetodon auriga* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 628, pl. 74.

Material examined : Baratang (South Andaman), 15.2.1985, 2 exs., 130 mm; Coll : B. Mitra & party, Reg. No. 2071; North Reef Is. (North Andaman), 16.3.1993, 2 exs., 180 mm, Coll : G. C. Rao & party, Reg. No. 2205; Chidiyatapu (South Andaman), 15.8.1993, 1 ex. 118 mm; Coll : D.V. Rao, Reg. No. 2757; Narcondam Is. (North Andaman), 14.3.1994, 1 ex., 50 mm, Coll : D. V. Rao, Reg. No. 2574.

Diagnostic features : D. XIII, 24; A,III,21; P.16; V. I, 5; L1. 31-32. Depth 1.65-1.72 in standard length; snout equal to eye diameter; anterior dorsal rays prolonged into a filament. Body silvery blue

with pattern of chevron markings on sides; posterior part of body yellow with a large black spot on soft dorsal; a black band through eye; caudal and posterior anal fins yellow.

Habitat : Found around protected reefs in shallow water.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Japan and Australia to Hawaiian Islands.

***Chaetodon collare* Bloch, 1787**

(Fig. 184)

1787. *Chaetodon collare* Bloch, *Nat. Ausland fische.*, 3 : 116.

1980. *Chaetodon collare* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 376, fig. 316.

Material examined : Rutland Is. (South Andaman), 16.10.1993, 2 exs., 165 mm, Coll : D. V. Rao & party, Reg. No. 2428; Little Andaman, 22.3.1995, 2 exs., 137 mm, Coll : D. V. Rao & party, Reg. No. 2901.

Diagnostic features : D. XII, 26; A. III, 22; P. 16; V. I, 5; L1. 32. Depth 1.37 in standard length; eye equal to snout; body brownish-olive, scales with pale centers; snout to post orbital part of head black; a broad white band from nape through opercular margin bordering eye to isthums; second band around snout before eye; ventral side of snout white; dorsal fin reddish brown, margin of soft dorsal white; ventral fin blackish; caudal fin scarlet basally with cross band in the middle, distal part white.

Habitat : Found around coral reefs.

Distribution : Indo-West Pacific, from Muscat, Madagascar to Marianas.

***Chaetodon ephippium* Cuvier, 1831**

1831. *Chaetodon ephippium* Cuvier, *Hist. Nat Poiss.*, 7 : 80.

1992. *Chaetodon ephippium* : Rajan *et al*, *J. Andaman Sci. Assoc.*, 8(2) : 172, fig. 1.

Material examined : South Reef Is. (North Andaman), 23.3.1993, 1 ex., 225 mm, Coll : G. C. Rao & party, Reg. No. 2218.

Diagnostic features : D. XIII, 24; A. III, 21; P. 16; V. I, 5; L1. 38. Body compressed and oval; depth 1.65, head 3.3 in standard length; rostro-dorsal profile strongly concave before eye; snout conical and pointed, much longer than eye; preoperculum finely denticulated at its angle; lateral line strongly arched; dorsal and anal rounded posteriorly; 4th and 5th ray of dorsal fin extending posteriorly into a filament. Upper half of body yellowish grey and lower half with diffuse violet longitudinal stripes running parallel to scale rows; a large black area posteriorly on back adjacent to dorsal fin, broadly bordered below by white area; a short narrow black bar through eye; posterior margin of dorsal and anal fins yellowish with light thin brownish sub-marginal band; edge of caudal peduncle with narrow brown band.

Habitat : Found in sheltered shallow reef areas.

Distribution : Indo-Pacific, from Andaman Is. to Japan and Australia to Society and to Hawaiian Islands.

***Chaetodon falcula* Bloch, 1793**

(Fig. 185)

1793. *Chaetodon falcula* Bloch, *Ausland. Fische.*, 7 : 102, pl. 325.

1986. *Chaetodon falcula* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 628, pl. 75.

Material examined : Chidiyatapu (South Andaman), 8.4.1993, 1 ex., 159 mm; Coll : D. V. Rao & party, Reg. No. 2199; Rutland Is. (South Andaman), 16.10.1993, 1 ex., 57 mm, Coll : D. V. Rao & party, Reg. No. 2552; Narcondam Is. (North Andaman), 15.3.1994, 2 exs., 143 mm, Coll : D. V. Rao, Reg. No. 2539.

Diagnostic features : D. XII, 24-25; A. III, 20-22; P. 15-16; V. I, 5; L1. 28-30. Depth 1.7-1.83, head 2.89-2.92 in standard length. Body yellow, slightly lighter below with two triangular black blotches dorsally; a broad black band from nape through eye to isthmus; several vertical narrow black lines on body; black band around caudal peduncle; dorsal, anal and caudal fins yellow with sub-marginal black band; pectoral and ventral fins pale yellow.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Philippines and to Tuamotu Island.

*** *Chaetodon guttatissimus* Bennett, 1832**

1832. *Chaetodon guttatissimus* Bennett, *Proc. Zool. Soc., London*, 2 : 183.

1986. *Chaetodon guttatissimus* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 628, pl. 75.

Material examined : Rutland Is. (South Andaman), 16.10.1993, 2 exs., 84 mm, Coll : D. V. Rao & party Reg. No. 2430.

Diagnostic features : D. XIII, 22; A. III, 16; P. 14; V. I, 5; L1 32. Depth 1.5, head 3.19 in standard length; eye 3.5 in head. Body pale white with small dark spots arranged in rows, the spots extending onto dorsal and anal fins; dark band around caudal peduncle; a black band from nape through eye to lower opercular margin; black vertical bar at middle of caudal fin; margin of dorsal and anal fins light yellow.

Habitat : Found around rocky areas near reefs.

Distribution : Indian Ocean, from Red Sea, east coast of Africa to Andaman Is. and Sri Lanka.

***Chaetodon lineolatus* Cuv. & Gaimard, 1831**

(Fig. 186)

1831. *Chaetodon lineolatus* Cuvier & Gaimard, *Hist. Nat. Poiss.*, 7 : 40.1992. *Chaetodon lineolatus* : Rajan *et al*, *J. Andaman Sci. Assoc.*, 8(2) : 172.

Material examined : Rayhill Is. (North Andaman), 19.3.1993, 1 ex., 160 mm, Coll : G. C. Rao & party, Reg. No. 2258.

Diagnostic features : D. XII, 25; A.III, 21; P. 16; V. I, 5; L1. 31. Depth 1.7, head 2.9 in standard length; eye 3.8 in head, equal to interorbital space; rostrum-dorsal profile deeply concave above eye; dorsal and ventral profiles equally convex. Body white with black elliptical marking along base of soft dorsal fin and extending across caudal peduncle to posterior anal rays; a series of 18-20 vertical black lines across sides; prominent black band through eye and partially interrupted on front above eye; median fins bright yellow; two reddish longitudinal lines on soft dorsal and anal fins and transverse line on caudal peduncle.

Habitat : Found around coral reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Japan and Australia to Hawaiian Islands.

***Chaetodon lunula* (Lacepede, 1803)**1803. *Chaetodon lunula* Lacepede. *Hist. Nat. Poiss.*, 4 : 507, 511.1986. *Chaetodon lunula* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, P. 629, pl. 75.

Material examined : Rutland Is. (South Andaman), 25.1.1994, 1 ex., 128 mm, Coll : D. V. Rao & party, Reg. No. 2845.

Diagnostic features : D. XII, 24; A. III, 19; P. 16; V. I, 5; L1. 42. Depth 1.52, head 2.9 in standard length; dorsal profile of head concave; lower border of eye below level of gape of mouth. Body yellow becoming brown on upper half of sides; series of oblique reddish-brown bands; curved broad yellow edged black band from upper edge of gill opening to base of middle dorsal spines; wide black bar through eye with a white bar behind it; large black spot across caudal peduncle; caudal fin with sub-marginal black band.

Habitat : Found on coral reefs in shallow waters.

Distribution : Indo-Pacific from east coast of Africa to Japan and Australia to Hawaiian Islands.

*** *Chaetodon meyeri* (Bloch & Schn., 1801)**1801. *Chaetodon meyeri* Bloch & Schneider, *Syst. Ichth.*, p. 223.1986. *Chaetodon meyeri* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 629.

Material examined : Rutland Is. (South Andaman), 16.10.1993, 1 ex., 152 mm, Coll : D. V. Rao & party, Reg. No. 2540; Narcondam Is. (North Andaman), 15.3.1994, 2 exs., 153 mm, Coll : D. V. Rao, Reg. No. 2538.

Diagnostic features : D. XII, 23; A. III, 18; P. 16; V. I, 5; L1. 44-45. Depth 1.4-1.59, head 3.2-3.3 in standard length, eye 3.8-4.0 in head. Body bluish-white, upper sides of head grey with curved to oblique black bands on sides; yellow edged black bars on snout, through eye and across operculum; median fins yellowish with sub-marginal black bands.

Habitat : Found around coral reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Japan and Australia to Line Islands.

***Chaetodon plebeius* Cuvier, 1831**

(Fig. 187)

1831. *Chaetodon plebeius* Cuvier, *Hist. Nat. Poiss.*, 7 : 68.

1936. *Chaetodon plebeius* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 7 : 56.

Material examined : North Reef Is. (North Andaman), 9.3.1993, 3 exs., 95-125 mm, Coll : G. C. Rao & party, Reg. No. 2265; Chidiyatapu (South Andaman), 4.8.1993, 1 ex., 132 mm; Coll : D. V. Rao, Reg. No. 2754; Rutland Is. (South Andaman), 26.1.1994, 1 ex., 139 mm; Coll : D. V. Rao & party, Reg. No. 2587; Hut Bay (Little Andaman), 19.3.1995, 1 ex., 145 mm, Coll : D. V. Rao & party, Reg. No. 2895.

Diagnostic features : D. XIII, 18; A. IV, 16; P. 15; V. I, 5; L1. 39-40. Depth 1.75-1.8, head 3.3-3.38 in standard length. Body light yellow with narrow dark lines along the longitudinal scales rows; an elongate blue patch on upper sides and a black spot on caudal base; a blue edged black bar through eye; all fins yellow.

Habitat : Found in shallow coral reef areas.

Distribution : Indo-West Pacific, from Andaman Is. to Japan and Australia to Fiji.

***Chaetodon triangulum* Cuvier, 1831**

(Fig. 188)

1831. *Chaetodon triangulum* Cuvier, *Hist. Nat. Poiss.*, 7 : 44.

1936. *Chaetodon triangulum* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 7 : 48.

Material examined : Hut Bay (Little Andaman), 14.9.1990, 1 ex., 107 mm, Coll : K. V. Raman & party, Reg. No. 2072; North Reef Is. (North Andaman), 26.3.1993, 1 ex., 99 mm, Coll : G. C. Rao & party, Reg. No. 2229; Mayabunder (North Andaman), 28.3.1993, 1 ex., 98 mm, Coll : G. C. Rao & party, Reg. No. 2201; Rutland Is. (South Andaman), 18.10.1993, 1 ex., 118 mm, Coll : D. V. Rao & party, Reg. No. 2756; Narcondam Is. (North Andaman), 14.3.1994, 2 exs., 10 mm, Coll : D. V.

Rao, Reg. No. 2606; Outram Is. (Ritchie's Archipelago), 3.3. 1994, 1 ex., 108 mm, Coll : D. V. Rao & party, Reg. No. 2828.

Diagnostic features : D. XI, 26-27; A. III, 22-23; P. 14; V. I, 5; L1. 26-28. Depth 1.26-1.5, head 2.96-3.1 in standard length; snout short and prominent. Body purplish brown with narrow cream coloured angularly bent bars on sides; three dark bars on head; dark purplish bar with pale edge across caudal fin; edge of soft dorsal black; ventral fins light yellow.

Habitat : Found around coral reefs in shallow waters.

Distribution : Indo-West Pacific, from Maldives, Andaman Is. to Philippines and Australia to Solomon Island.

***Chaetodon trifasciatus* Mungo Park, 1797**

(Fig. 189)

1797. *Chaetodon trifasciatus* Mungo Park, *Trans. Linn. Soc., London.*, 3 : 34.

1992. *Chaetodon trifasciatus* : Rajan *et al*, *J. Andaman Sci. Assoc.*, 8(2) : 173, fig. 2.

Material examined : Kamorta Is. (Nicobar Group), 9.2.1993, 1 ex., 115 mm, Coll : D. V. Rao & party, Reg. No. 2289; North Reef Is. (North Andaman), 25.3.1993, 2 exs., 70 & 110 mm, Coll : G. C. Rao & party, Reg. No. 2206; Trinket Is. (Nicobar Group), 17.2.1993, 2 exs., 62 & 77 mm, Coll : D. V. Rao & party, Reg. No. 2497; Rutland Is. (South Andaman), 16.10.1993, 1 ex., 50 mm, Coll : D. V. Rao & party, Reg. No. 2523; Narcondam Is. (North Andaman), 15.3.1994, 1 ex., 154mm, Coll : D. V. Rao, Reg. No. 2541; Outram Is. (Ritchie's Archipelago), 3.3.1994, 2 exs., 105, mm Coll : D. V. Rao & party, Reg. No. 2550; Little Andaman, 18.3.1995, 1 ex., 130 mm, Coll : D. V. Rao, Reg. No. 2894.

Diagnostic features : D. XIII, 21-23; A. III, 19; P.15; V. I, 5; L1. 31-33. Depth 1.6-1.7, head 3.2-3.5 in standard length; eye 3.0-3.3 in head, slightly shorter than snout. Body golden-orange with slightly oblique, narrow purplish stripes on body; broad yellow edged black bar through eye; snout black; a narrow bluish-black curved stripe along preopercular margin; broad reddish stripe in soft part of dorsal, anal and caudal fins; pectoral and ventral fins whitish.

Habitat : Found around protected coral reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Ryukyu Is., and Australia to Hawaiian Islands.

***Chaetodon vagabundus* Linnaeus, 1758**

(Fig. 190)

1758. *Chaetodon vagabundus* Linnaeus., *Syst. Nat.*, ed. 10, p. 465.

1986. *Chaetodon vagabundus* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 630, pl. 76.

Material examined : Hut Bay (Little Andaman), 14.9.1990, 1 ex., 145 mm, Coll : K. V. Raman & party, Reg. No. 2073; Curlew's Is, (North Andaman), 17.3.1993, 1 ex., 134 mm, Coll : D. V. Rao & party, Reg. No. 2235; Rutland Is. (South Andaman), 18.10.1993, 1 ex., 118 mm, Coll : D. V. Rao, Reg. No. 2795; Outram Is. (Ritchie's Archipelago), 3.3.1994, 2 exs., 260 mm, Coll : D. V. Rao, Reg. No. 2827.

Diagnostic features : D. XIII, 24-26; A. III, 20-21; P. 15-16; V. I,5; L1. 31-32. Depth 1. 59-1.7, head 2.8-3.1 in standard length; lateral line strongly arched. Body orange-yellow with narrow slightly oblique purplish stripes on body; broad yellow edged black bands at base of dorsal and anal fins and across middle of caudal fin; an yellow edged black bar through eye; snout black; paired fins yellow.

Habitat : Found around thick coral reef areas.

Distribution : Wide spread in Indo-Pacific region.

Genus *Heniochus* Cuvier, 1816

Key to Species

- 1a A notch on forehead with a bony protruberance just above orbit; a curved horn above each eye; dorsal spine not filamentous; body dark brown to black with white band across head and middle of body *H. varius*
- 1b Bony protruberance may be present; 4th dorsal spine prolonged as a tapering white filament; colour not as in 1a..... 2
- 2a Dorsal fin filament more than body length; no black band around snout 3
- 2b Dorsal fin filament longer than head, but not more than body length; black band around snout *H. singularius*
- 3a Dorsal spines 12; snout shorter than eye diameter; horizontal line through upper jaw symphysis, extends through middle of eye..... *H. diphreutes*
- 3b Dorsal spines 11; snout not shorter than eye diameter; horizontal line through upper jaw symphysis, extends through lower edge of eye or below *H. acuminatus*

Heniochus acuminatus (Linnaeus, 1758)

1758. *Chaetodon acuminatus* Linnaeus, *Syst. Nat.*, ed. 10. p. 272.

1986. *Heniochus acuminatus* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 631, pl. 74.

Material examined : Smith Is. (North Andaman), 15.9.1990, 2 exs., 112 mm, Coll : H. S. Mehta & party, Reg. No. 1368.

Diagnostic features : D. XI, 26; A. III, 18; P. 18; V. I, 5; L1. 48. Depth 1.3, head 3.0 in standard length; snout longer than eye diameter; lateral line strongly arched; the 4th dorsal spine and its membrane greatly prolonged; ventral fin longer than pectoral. Body pearly white with broad oblique

black bands on sides, the 1st continues with black ventral fins and 2nd band ending on posterior half of anal fin; soft dorsal and caudal fins yellow; a black bar above eye; dorsal filament white.

Habitat : Found in reef areas in pairs.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is., to Japan and Australia to Hawaiian Islands.

***Heniochus diphreutes* Jordan, 1903**

1903. *Heniochus diphreutes* Jordan, *Pro. U. S. Nat. Mus.*, 26 : 694.

1992. *Heniochus diphreutes* : Rajan *et al*, *J. Andaman Sci. Assoc.*, 8(2) : 173.

Material examined : Katchal Is. (Nicobar Group), 13.2.1993, 1 ex., 44 mm, Coll : D. V. Rao & party, Reg. No. 2286.

Diagnostic features : D. XII, 24; A. III, 18; P. 18; V. I, 5; L1. 52. Body compressed and elevated; sub-rhomboidal; under side of head more rounded; depth 1.5, head 4.9 in standard length; eye 2.0 in head, slightly longer than snout; front of dorsal fin extended as a long filament. Body white with broad black bands on sides, the 1st from first three dorsal spines to belly, the second band from posterior dorsal spine to posterior half of anal fin; soft dorsal and caudal fins yellow; ventral fin black; a black bar above eye.

Habitat : Found in coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Hawaiian Islands.

*** *Heniochus singularius* Smith & Radcliffe, 1911**

1911. *Heniochus singularius* Smith & Radcliffe, *Pro. U. S. Nat. Mus.* p. 321.

1936. *Heniochus singularius* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 7 : 45, fig. 15.

Material examined : Outram Is. (Ritchie's Archipelago), 3.3.1994, 2 exs., 140 mm, Coll : D. V. Rao & party, Reg. No. 2548.

Diagnostic features : D. XII, 26; A. III, 18; P. 16; V.I, 5; L1. 61. Depth 1.4, head 3.1 in standard length; 4th dorsal spine prolonged as a filament; a pair of bony black knobs on forehead. Body silvery-white with three broad black bands, more diffuse due to pale centers; the second band continuous with black ventrals; dorsal and caudal fins yellow; an isolated black band encircling snout.

Habitat : Found near reef slopes.

Distribution : Indo-West Pacific, from Andaman Is., Indonesia to Japan and Australia to Samoa.

***Heniochus varius* (Cuvier, 1829)**

1829. *Taurichthys varius* Cuvier *Regne. Animal.*, 2 : 128.

1992. *Heniochus varius* : Rajan *et al*, *J. Andaman Sci. Assoc.*, 8(2) : 174, fig. 3.

Material examined : Trinket Is. (Nicobar Group), 17.2.1993, 1 ex., 138 mm, Coll : D. V. Rao & party, Reg. No. 2290; South Reef Is. (North Andaman), 23.3.1993, 1 ex., 147 mm, Coll : G. C. Rao & party, Reg. No. 2262.

Diagnostic features : D. XI, 24; A. III, 18; P. 15; V. I, 5; L1. 55. Body compressed and strongly elevated, depth 1.35, head 2.8 in standard length; eye 3.2-3.4 in head, equal to interorbital space; a notch on forehead with bony protruberance; a curved sharp horn above each eye; 4th dorsal spine prolonged and strong without a filamentous part, the membrane is broad. Body dark brown to black with a narrow white bar from upper nape through gill cover to thorax and 2nd oblique white bar from rear spinous dorsal fin to caudal peduncle; ventral and anal fins black; caudal and soft dorsal paler; pectoral fins yellowish brown.

Habitat : Found around reef areas.

Distribution : Indo-West Pacific, from Andaman Is. to Japan and Australia to Samoa Island.

Family POMACANTHIDAE

Body compressed, ovoid to sub-rhomboid; mouth small with bristle-like; teeth tricuspid; serrated preopercle with strong spine at angle; lateral line runs parallel to dorsal profile, and inconspicuous; no scaly axillary process at the base of ventral fins; scales with ridges ending in sharp point.

Key to Genera

- 1a Lateral line complete; scales small *Pomacanthus*
- 1b Lateral line terminates below end of dorsal; scales moderate *Pygoplites*

Genus *Pomacanthus* Lacepede, 1803

Key to Species

- 1a Body with oblique stripes 2
- 1b Body without stripes; anterior and posterior third of body brownish, middle portion greenish; body and fins with small blue spots *P. semicirculatus*
- 2a Body with 20-22 yellow oblique bands and dark area from isthmus to origin of lateral line; snout and cheek blue *P. imperator*
- 2b Body with 7-9 blue oblique bands and a blue ring at origin of lateral line; no dark area from isthmus *P. annularis*

Pomacanthus annularis (Bloch, 1787)

(Fig. 191)

1787. *Chaetodon annularis* Bloch, *Nat. Ausland Fische.*, 3 : 114, pl. 215, fig. 2.

1986. *Pomachanthus annularis* : Smith & Heemstra, *Smith's Sea Fishes*, p. 625, pl. 73.

Material examined : Mayabunder (North Andaman), 26.8.1991, 1 ex., 380 mm, Coll : K. Chandra & party, Reg. No. 1794; South Reef Is. (North Andaman), 23.3.1993, 2 exs., 246 mm, Coll : G. C. Rao & party, Reg. No. 2221.

Diagnostic features : D. XIII, 20; A. III, 20; P. 19; V.I, 5; L1. 69. Rostro-dorsal profile straight to nape; preopercle spine strong. Body yellowish brown with 7 curved bluish lines radiating from pectoral fin to soft dorsal fin rays; two horizontal lines on opercle, the superior crossing the eye and the inferior below it, base of pectoral with transverse lines; blue ring above opercle margin near lateral line; caudal and pectoral fins yellow; ventral fin grey.

Habitat : Found in outer reef areas.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Okinawajima and Solomon Islands.

***Pomacanthus imperator* (Bloch, 1787)**

(Fig. 192)

1787. *Chaetodon imperator* Bloch, *Nat Ausland Fische.*, 3 : 51.

1986. *Pomacanthus imperator* : Smith & Heemstra, *Smith's Sea Fishes*, p. 626, pl. 73.

Material examined : Rutland Is. (South Andaman), 16.10.1993, 1 ex. 216 mm, Coll : D. V. Rao & party, Reg. No. 2427; Narcondam Is. (North Andaman), 14.3.1994, 1 ex., 195 mm, Coll : D. V. Rao, Reg. No. 2710.

Diagnostic features : D. XIV, 20; A. III, 20; P. 19; V. I, 5; L1. 78. Depth 1.9-2.1, head 3.7-4.8 in standard length; preopercular spine longer than eye; soft dorsal acutely produced. Body purplish-blue with narrow yellow stripes; snout and cheek bluish-white; a curved blue-edged black bar through eye with a greenish yellow bar just behind that, confluent with yellow colour on forehead; a broad black bar at the level of pectoral.

Habitat : Found near caves in coral reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Japan and Australia to Tuamotu Island.

***Pomacanthus semicirculatus* (Cuvier, 1831)**

(Fig. 193 & 194)

1831. *Holacanthus semicirculatus* Cuvier, *Hist. Nat Poiss.*, 7 : 191.

1986. *Pomacanthus semicirculatus*: Smith & Heemstra, *Smith's Sea Fishes*, p. 626.

Material examined : South Reef Is. (North Andaman), 23.3.1993, 1 ex., 218 mm, Coll : G. C. Rao & party, Reg. No. 2213; Outram Is. (Ritchie's Archipeago), 1.3.1994, 1 ex., 64 mm, Coll : D. V. Rao & party, Reg. No. 2591; Narcondam Is. (North Andaman), 14.3.1994, 1 ex., 98 mm, Coll : D. V. Rao, Reg. No. 2589; Campbell Bay (Great Nicobar), 14.2.1994, 2 exs. 65 mm, Coll D. V. Rao & party, Reg. No. 2408.

Diagnostic features : D. XIII, 21-22; A. III, 20; P. 20; V.I, 5; LI. 66-68. Depth 1.5-1.59, head 3.1-3.25 in standard length; rostro-dorsal profile obliquely ascending with slight concavity on snout; spine at angle of preoperculum equal to eye diameter; soft dorsal and anal fins acute and prolonged as a filament; anterior end and posterior third of body brownish, middle portion yellowish grey; edges of preoperculum, operculum and all fins except pectorals with blue margin; numerous bluish spots on body and fins. Junveniles black with alternating blue and white bars on head, body and caudal fin, the bars more curved posteriorly.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman & Nicobar Is., to Japan and Australia to Tuamotu Island.

Genus *Pygoplites* Fraser-Brunner, 1933

Pygoplites diacanthus (Boddaert, 1772)

1772. *Chaetodon diacanthus* Boddaert, *Epistola de chaetodonti diacantho Anstelodami*, pl. 9.

1986. *Pygoplites diacanthus* : Smith & Heemstra, *Smith's Sea Fishes*, p. 626, pl. 72.

Material examined : Narcondam Is. (North Andaman), 14.3.1994, 2 exs., 248 & 260 mm, Coll : D. V. Rao, Reg. No. 2530; Rutland Is. (South Andaman), 25.1.1994, 1 ex., 242 mm, Coll : D. V. Rao & party, Reg. No. 2679.

Diagnostic features : D. XIV, 18; A. III, 18; P.16; V. I, 5; L1. 52. Depth 2.36, head 4.0 in standard length; rostro-dorsal profile obliquely ascending; snout longer and pointed. Body with alternating brilliant dark edged bluish white and orange stripes which narrow and angled backward in dorsal fin; posterior part of dorsal fin dark with blue spots; anal fin yellowish orange with blue stripes; caudal and ventral fins yellow.

Habitat : Found near caves in reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., to Ryukyu Is., and Australia to Tuamotu Islands.

Family POMACENTRIDAE

The Pomacentrids are one of the most abundant groups of coral reef fishes. Body compressed, ovoid to orbicular with a single continuous dorsal fin, base of spinous portion longer than soft portion; scales ctenoid, extending onto dorsal and anal fins; caudal emarginate to forked or lunate; head scaled; lateral line interrupted; mouth small; slightly protractile; snout blunt and short; teeth conical or compressed, uniserial or more rows; no teeth on plate; one nostril on each side; body colouration is highly variable ranging from drab hues of brown-grey and black to brilliant combinations of orange, red, blue and yellow.

Key to genera

- 1a Lateral line scales 15-21; all opercular bones strongly serrate.....2
- 1b Lateral line scales 21 or above; most of opercular bones smooth or slightly serrate.....3
- 2a Preorbital and sub-orbital with a long spine directed backward; body bright scarlet to dull red with 2-3 white bars.....*Premnas*
- 2b Preorbital and sub-orbital without spines but strongly serrate; body bright orange, brownish-black or orange-red with or without white bars*Amphiprion*
- 3a Upper and lower edge of caudal base with projecting spiniform rays; teeth usually conical in two or more rows 4
- 3b Upper and lower edge of caudal base without projecting spiniform rays; teeth usually conical to flattened in one or two rows.....5
- 4a Preopercle serrated; body orbiculate, depth 1.4-1.7 in SL*Dascyllus*
- 4b None of the opercular bones serrated; body more elongate, depth 1.7-2.5 in SL*Chromis*
- 5a Caudal fin deeply forked, lobes pointed and more or less filamentous; teeth in one row.....*Amblypomacentrus*
- 5b Caudal fin forked or emarginate, lobes not filamentous; teeth in one or two 6
- 6a Rear margin of preopercle serrate 7
- 6b Rear margin of preopercle smooth.....8
- 7a Body white with 3 black saddles, two below dorsal and the 3rd across nape; anus dark brown*Dischistodus*
- 7b Body with blue, violet, white, brown or yellow with spots or lines or uniform colour*Pomacentrus*
- 8a Body depth 2. 2-2. 5 in SL; uniform blue, brown or yellow with ocelli or narrow bands
.....*Chrysoptera*
- 8b Body depth 1.5-2.0 in SL; 5-7 dark bars on sides of body.....*Abudefduf*

Genus *Abudefduf* Forsskal, 1775

Key to Species

- 1a Sides of body with 5 black bars; yellowish dorsally; caudal fin lobes pointed *A. vaigiensis*
- 1b Sides of body with 6-7 black or dark grey bars; caudal fin lobes almost rounded 2
- 2a Scales on head reaching to nostrils *A. bengalensis*
- 2b Scales on head reaching to anterior part of interorbital space but not to nostrils 3
- 3a Caudal peduncle with prominent black spot on dorsal surface; soft dorsal rays 15-16 *A. sordidus*
- 3b Caudal peduncle without black spots on dorsal surface; soft dorsal rays usually 12-14 *A. septemfasciatus*

Abudefduf bengalensis (Bloch, 1787)

1787. *Chaetodon bengalensis* Bloch, *Nat. Auland Fische.*, 3 : 110, pl. 213, fig. 2.

1980. *Abudefduf bengalensis* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, P.418, fig. 351.

Material examined : Bambooflat (South Andaman), 14.9.1992, 1 ex., 182 mm, Coll : P.T. Rajan, Reg. No. 2013.

Diagnostic features : D. XIII, 14; P. 18; V. I, 5; L1. 23. Depth 1.85, head 3.0 in standard length; preorbital naked; scales on head reaching to nostrils; caudal lobes rounded. Body light grey with 6 black bars on sides.

Habitat : Found in protected inshore areas.

Distribution : Indo-West Pacific, from Madagascar, coasts of India, Andaman Is. to China and Australia to Samoa Island.

Abudefduf septemfasciatus (Cuvier, 1830)

1830. *Glyphisodon septemfasciatus* Cuvier *Hist. Nat. Poiss.*, 5 : 463.

1986. *Abudefduf septemfasciatus* : Allen, in Smith & Heemstra, *Smith's Sea Fishes*, p. 672, pl. 85.

Material examined : South Bay (Great Nicobar) 6.7.1984, 1 ex., 175 mm, Coll : M. K. Devroy, Reg. No. 1748; Wrightmyo (South Andaman), 4.2.1989, 1 ex., 185 mm, Coll : G. C. Rao & party, Reg. No. 1824; Redskin Is. (South Andaman), 6.4.1990, 2 exs., 95 mm, Coll : K. V. Raman & party, Reg. No. 1633; Havelock Is. (Ritchie's Archipelago), 21.11.1991, 1 ex., 135 mm, Coll : D. V. Rao, Reg. No. 2069; South Bay (Little Andaman), 16.3.1995, 1 ex., 73 mm, Coll : D. V. Rao & party, Reg. No. 2950.

Diagnostic features : D. XIII,13; A. 11; 12; P. 18-20; V. I, 5 : L1. 20-21. Depth 1.79-2.15, head 2.85-3.2 in standard length; teeth uniserial in jaws; scales not reaching nostrils; opercular margin smooth. Body light yellowish-white with 7 dark grey transverse bands on side; soft dorsal, anal and caudal fins dusky; pectoral yellowish with basal triangular black spot.

Habitat : Found around rocky areas near reefs.

Distribution : Indo-Pacific, from east coast of Africa to coasts of India, Andaman & Nicobar Is. to Japan and Australia to Line Islands.

***Abudefduf sordidus* (Forsskal, 1775)**

1775. *Chaetodon sordidus* Forsskal, *Descript. Animal*, p. 62.

1986. *Abudefduf sordidus* : Allen, in Smith & Heemstra, *Smith's Sea Fishes*, p. 672, pl. 86.

Material examined : Redskin Is. (South Andaman), 6.12.1990, 1 ex., 71 mm, Coll : K. V. Raman & party, Reg. No. 2159; Rangat Bay (Middle Andaman), 20.8.1991, 2 exs., 27 & 40 mm, Coll : K. Chandra & party, Reg. No. 1780; North Reef Is. (North Andaman), 26.3.1993, 2 exs., 46 & 48 mm, Coll : G.C. Rao & party, Reg. No. 2780; Tarmugli Is. (South Andaman), 2.8.1993, 2 exs., 52 & 62 mm, Coll : D. V. Rao & part, Reg. No. 2781.

Diagnostic features : D. XIII,14-15; A. II; 14-15; P. 18; V. I, 5 : L1. 21-22. Depth 1.82-1.91, head 2.8-2.89 in standard length; 1st ray of ventral fin prolonged. Body yellowish-white, lighter below with 5-6 dark grey bars on sides; a black spot at tip of caudal fin base; all fins dusky.

Habitat : Found around rocky and reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is. to Japan and Australia to Hawaiian Islands.

***Abudefduf vaigiensis* (Quoy & Gaimard, 1825)**

(Fig. 195)

1825. *Glyphisodon vaigiensis* Quoy & Gaimard, *Voy. de Uranie. Physio. Zoology.*, p.391.

1986. *Abudefduf vaigiensis* : Allen, in Smith & Heemstra, *Smith's Sea Fishes*, p. 672, pl. 86.

Material examined : Bambooflat (South Andaman), 14.9.1992, 3 exs., 115-171 mm, Coll : P. T. Rajan, Reg. No. 2195; North Reef Is. (North Andaman), 1 ex., 168 mm, Coll : G. C. Rao & party, Reg. No. 2234; Chidiyatapu (South Andaman), 2.8.1993, 1 ex., 95 mm, Coll : D. V. Rao, Reg. No. 2783; Little Andaman, 23.3.1995, 1 ex., 58 mm, Coll : D. V. Rao, Reg. No. 2951.

Diagnostic features : D. XII,14; A. II, 12; P. 18; V. I, 5; L1. 20-21. Depth 1.79-1.82, head 3.48-3.58 in standard length. Body pale bluish-white with 5 black bars on sides; bright yellow on back; all fins dusky.

Habitat : Found around coral reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa, Andaman Is. to Japan and Australia to Marquesas Island.

Genus *Amblypomacentrus* Weber, 1913

Amblypomacentrus breviceps (Schlegel & Muller, 1839-41)

1838-41. *Glyphysodon breviceps* Schlegel & Muller, *Verh. Nat. Gesh. Ned. Bezilt. Zool.*, p.23.

1991. *Amblypomacentrus breviceps* : Allen, *Damsel Fishes of the World.*, p 32.

Material examined : 31.7.1992, 3 exs., 62-67 mm, Coll : D. V. Rao, Reg. No. 2952.

Diagnostic features : D. XIII, 10-11; A. II, 11-12; P. 16; V. I, 5; L1. 16+8. Depth 2.15-2.31, head 3.2-3.32 in standard length, suborbital and preorbital naked; lower border of suborbital denticulated; snout naked; caudal fin forked, the lobes pointed. Body white with three broad black bars, the 1st one from nape to eye and to isthmus, 2nd from origin of dorsal fin to lateral line level and the 3rd from posterior dorsal rays to mid-lateral line; longitudinal rows of blue spots on side of body and caudal fin; spinous dorsal dusky.

Habitat : Found on sandy bottom near reefs.

Distribution : Indo-West Pacific, from Andaman Is. to Queensland.

Genus *Amphiprion* Block & Schneider, 1801

Key to Species

- 1a Body uniform pale pink with pale stripe from snout to dorsal fin base.....*A. akallopisos*
- 1b Body orange-red or brownish-black with light transverse bands or dark saddle 2
- 2a Body orange-red with large black blotch covering on back and sides*A. ephippium*
- 2b Body with 3 transverse bands; colour not as in 2a.....3
- 3a Body orange, white bars narrowly edged with black; mid body bar with distinct forward projection; all fin margins black.....*A. ocellaris*
- 3b Body brownish-black with broad white bars; anterior part of head and fins yellow*A. clarkii*

Amphiprion akallopisos Bleeker, 1853 Bleeker, 1853

1853. *Amphiprion akallopisos* Bleeker, *Nat. Tijds. Ned. Indie.* 4 : 281.

1986. *Amphiprion akallopisos* : Allen, in Smith & Heemstra, *Smith's Sea Fishes*, p. 672, pl. 86.

Material examined : North Reef Is. (North Andaman), 26.3.1993, 2 exs., 73 & 89 mm, Coll : G. C. Rao & party, Reg. No. 2805; Outram Is. (Ritchie's Archipelago), 2.3.1994, 1 ex., 50 mm, Coll : D. V. Rao & party, Reg. No. 2692; Tarmugli Is. (South Andaman), 2.2.1993, 1 ex., 78 mm, Coll : D.V. Rao & party, Reg. No. 2804.

Diagnostic features : D. IX, 18; A.II,12; P.16; V. I, 5; L1. 38. Depth 2.29, head 3.0 in standard length; opercular bones scaly; predorsal scales 26; caudal fin slightly rounded. Body pinkish yellow with a narrow white median band from interorbital space to along base of dorsal to upper rays of caudal fin; all fins light yellow.

Habitat : Found near reef areas, commensal with Sea anemone.

Distribution : Tropical Indian Ocean, from east coast of Africa to Andaman Islands to Thailand.

***Amphiprion clarkii* (Bennett, 1830)**

1830. *Anthias clarkii* Bennett, *Fishes of Ceylon*, (29)

1984. *Amphiprion clarkii* : Ida, in Masuda *et al*, *Fishes of Japanese Archipelago*, p. 191, pl. 184A, E.

Material examined : Hut Bay (Little Andaman), 14.9.1990, 1 ex., 102 mm, Coll : K. V. Raman & party, Reg. No. 2833; Bambooflat (South Andaman), 26.11.1992, 2 exs., 108 mm, Coll : P. T. Ranjan, Reg. No. 2196; Rutland Is. (South Andaman), 25.1.1994, 1 ex., 103 mm, Coll : D.V.Rao, Reg. No.2517; Narcondam Is. (North Andaman), 14.3.1994, 3 exs., 42-53 mm, Coll : D. V. Rao, Reg. No. 2807; Havelock Is. (Ritchie's Archipelago), 22.11.1991, 2 exs., 64 & 108 mm, Coll : D. V. Rao, Reg. No. 2814.

Diagnostic features : D. XI,14; A. II,12; P. 19-20; V. I, 5; L1. 42. Depth 1.95-2.1, head 2.9-3.4 in standard length; scales on head reaching to hind border of eyes; 23 predorsal scale rows. Body dark brown, snout and thorax pinkish; three broad white bands on body, the 1st from nape to interopercle, the 2nd from last two dorsal spines to in front of anal fin, the 3rd on caudal peduncle; dorsal and anal fins dark brown; caudal, pectoral and ventral fins yellow.

Habitat : Found in coral reef areas, commensal with Sea anemone.

Distribution : Indo-Pacific, from east coast of Africa to Japan, and Australia to Marshall Island.

***Amphiprion ephippium* (Bloch, 1790)**

(Fig. 196)

1790. *Lutjanus ephippium* Bloch, *Nat. Ausland Fische.*, 4 : 121.

1940. *Amphiprion ephippium* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 8 : 334.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 2 exs., 94 mm, Coll : D.V. Rao & party, Reg. No. 2495.

Diagnostic features : D. XI, 16; A. II, 14; P. 18; V. I, 5; L1. 41. Depth 1.8, head 2.96 in standard length; scales on head reaching to front border of eye; 27 predorsal scale rows. Body bright orange-red including fins; a large black blotch on back and on sides below soft dorsal extending to anal fin base.

Habitat : Found around coral reefs.

Distribution : Indian Ocean, from Andaman Is. to Indonesia.

***Amphiprion ocellaris* Cuvier, 1830**

(Fig. 197)

1830. *Amphiprion ocellaris* Cuvier, *Hist. Nat. Poiss.*, 5 : 399.

1991. *Amphiprion ocellaris* : Allen, *Damsel Fishes of the World*, p.

Material examined : Hut Bay (Little Andaman), 15.9.1990, 2 exs, 65-68 mm, Coll : K. V. Raman & party, Reg. No. 2806; Havelock Is. (Ritchie's Archipelago), 21.11.1991, 2 exs., 71 mm, Coll : D. V. Rao, Reg. No. 1970; Rangat Bay (Middle Andaman), 20. 8. 1991, 2 exs., 50-76 mm, Coll : K. Chandra & party, Reg. No. 2816; Mayabunder (North Andaman), 8.1.1992, 2 exs., 57 mm, Coll : D. V. Rao; Reg. No. 1822; Trinket Is. (Nicobar Group), 17.2. 1993, 2 exs., 45 & 60 mm, Coll : D. V. Rao & party Reg. No. 2993; North Reef Is. (North Andaman), 9.3.1993, 5 exs., 48-72 mm, Coll : G. C. Rao & party, Reg. No. 2268; Rutland Is. (South Andaman), 18.10.1993, 2 exs., 46 mm, Coll : D. V. Rao & party, Reg. No. 2419.

Diagnostic features : D. X-XI, 14; A. II, 12; P. 16; V. I, 5; L1. 33-36. Depth 2.1-2.25, head 3.2-3.76 in standard length. Body orange with three white bars narrowly edged with black, the mid body bar has distinct projection; all fins with black margin.

Habitat : Found on coral reefs, commensal with Sea anemones.

Distribution : Indo-West Pacific, from Sri Lanka, Andaman & Nicobar Is. to Ryukyu Is., and Australia.

Genus *Chromis* Cuvier, 1814

***Chromis caerulea* (Cuvier, 1830)**

1830. *Heliases caerulea* Cuvier, *Hist. Nat. Poiss.*, 5 : 497.

1986. *Chromis caerulea* : Allen, in Smith & Heemstra. *Smith's Sea Fishes*, p. 674, pl. 86.

Material examined : Wandoor (South Andaman), 25.8.1992, 2 exs., 78 mm, Coll : D. V. Rao & party, Reg. No. 2012.

Diagnostic features : D. XII, 10; A. II, 9; P. 18; V. I, 5; L1. 16. Depth 2.0, head 3.25 in standard length; no anaxillary scale on the body; dorsal fin without scaly sheath; 2nd dorsal spine longest. Body

pinkish-blue above, silvery below with a light blue band from eye to snout, light blue spots on scales around eye; base of pectoral with black band; caudal fin light yellow, the lobes bluish; all fins light blue.

Habitat : Found around *Acropora* sp. corals in shallow lagoons.

Distribution : Indo-West Pacific, from east coast of Africa to Japan, and Australia to Tuamotu Island.

Genus *Chrysiptera* Swainson, 1839

Key to Species

- 1a Body brown with white bar on middle of side; an ocellus at middle of dorsal rays and small white edged black spot behind last dorsal ray.....*C. biocellata*
- 1b. Colour pattern not as in 1a 2
- 2a. Body bright yellow with blue band from snout to dorsal, with 1 or 2 black spots on dorsal fin; another colour form dark brown with white bars on body and an yellow bar on opercle*C. leucopoma*
- 2b. Body brown; small black spot at base of posterior dorsal rays; pectoral fin yellow*C. unimaculata*

Chrysiptera biocellata Quoy & Gaimard, 1824

1824. *Glyphisodon biocellata* Quoy & Gaimard, *Voy. Uranie. Zoology*, p. 389.

1991. *Chrysiptera biocellata* : Allen, *Damsel Fishes of the World*, p. 90

Material examined : Car Nicobar Is., 9.8.1988, 1 ex., 40 mm, Coll : H. S. Mehta & party, Reg. No. 2068; Hut Bay (Little Andaman), 9.9.1990, 4 exs., 65-75 mm, Coll : K. V. Raman & party, Reg. No. 2891; Pilomillow (Nicobar Group), 31.3.1992, 2 exs., 54-58 mm, Coll : P. T. Rajan, Reg. No. 2067; Wandoor (South Andaman), 25. 8. 1992, 3 exs., 50 mm, Coll : D. V. Rao, Reg. No. 2064; Narcondam Is. (North Andaman), 14.3.1994, 67 & 82 mm, Coll : D.V. Rao, Reg. No. 2892; Little Andaman, 16.3.1995, 2 exs, 42 & 45 mm, Coll : D. V. Rao, Reg. No. 2891.

Diagnostic features : D. XIII, 12-14; A. II, 13; P. 17-18; V. I, 5; L1. 16+8. Depth 2.3-2.43, head 3.2-3.45 in standard length; hind border of preopercle smooth; scales on upper part of head not reaching nostrils; three rows of scales on preopercle. Body yellowish-brown with white bar on middle of sides. In juveniles blue edged black ocellus at base of middle dorsal ray and a small white edged black spot behind last dorsal rays.

Habitat : Found in coral rubble areas.

Distribution : Indo-West Pacific, from east coast of Africa to Andaman & Nicobar Is. and Sri Lanka to Ryukyu Is, and Australia to Samoa Island.

***Chrysiptera leucopoma* (Cuvier, 1830)**

1830. *Glyphisodon leucopoma* Cuvier, *Hist. Nat. Poiss*, 5 : 480.

1986. *Chrysiptera leucopoma* : Allen, in Smith & Heemstra, *Smith's Sea Fishes*, p. 676, pl. 87.

Material examined : Little Andaman, 15.3.1995, 7 exs., 22-59 mm, Coll : D. V. Rao, Reg. No. 2904.

Diagnostic features : D. XIII, 12-13; A. II, 11-12; P. 18; V.I, 5; L1. 18-19. Depth 2.4-2.53, head 3.3-3.42 in standard length; suborbital without scales; teeth in two rows in jaws; rear margin of preopercle smooth; caudal fin emarginate. Two colour varieties : One variety bright yellow with blue band from above eye to upper caudal peduncle, dorsal fin with two black blotches; the other variety dark brown with two white bars on body and an yellow bar on gill cover; dorsal, anal and ventral fins dark; a black blotch at base of posterior rays of dorsal fin; caudal fin brown basally, creamy white distally.

Habitat : Found around reefs in large numbers.

Distribution : Indo-West Pacific, from east coast of Africa to Andaman Is., Indonesia to Japan and Australia to Hawaiian Islands.

***Chrysiptera unimaculata* (Cuvier, 1830)**

(fig. 198.)

1830. *Glyphisodon unimaculata* Cuvier, *Hist. Nat. Poiss*, p. 478.

1991. *Chrysiptera unimaculata* : Allen, *Damsel Fishes of the world*, p. 104.

Material examined : Port Blair (South Andaman), 19.11. 1992, 2 exs., 80 mm, Coll : D. V. Rao, Reg. No. 2247; North Reef Is. (North Andaman), 11.3.1993, 3 exs., 62-85 mm, Coll : G. C. Rao & party, Reg. No. 2239; Curlew's Is. (North Andaman), 17.3.1993, 1 ex., 85 mm, Coll : G. C. Rao & party, Reg. No. 2238.

Diagnostic features : D. XIII, 13; A. II, 12-13; P. 18; V. I, 5; L1. 16-18+8. Depth 2.3-2.42, head 3.3-3.5 in standard length; scales on head beginning above posterior nostrils; 2 scale rows on preopercle; edge of preopercle smooth. Body brownish with a small black spot at base of posterior dorsal fin, extending onto rays; upper opercular edge with orange spots; pectorals yellow.

Habitat : Found in shallow reef areas exposed to wave action.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, Andaman Is. to Ryukyu Is. and Australia to Fiji.

Genus *Dascyllus* Cuvier, 1829

Key to Species

- 1a Soft dorsal rays usually 12; body pale with 3 black bars; caudal fin white***D. aruanus***
- 1b Soft dorsal rays usually 14-16; colour not as in 1a 2

- 2a Body blackish with black scale margins; a prominent pale spot dorsally on side or on forehead*D. trimaculatus*
- 2b. Body dark brown; pectoral base, lips, ventral fins and soft portion of anal fin black*D. marginatus*

***Dascyllus aruanus* (Linnaeus, 1758)**

(Fig. 199)

1758. *Chaetodon aruanus* Linnaeus, *Syst Nat.*, ed. 10, p. 275.

1991. *Dascyllus aruanus* : Allen, *Damsel Fishes of the World*, p. 106.

Material examined : Havelock Is. (Ritchie's Archipelago), 22.11.1991, 2 exs., 56 mm, Coll : D. V Rao, Reg. No. 1814; Mayabunder (North Andaman), 8.1.1992, 2 exs., 63 mm, Coll : D. V. Rao, Reg. No. 1821; Wandoor (South Andaman), 25.8.1992, 6 exs., 24-54 mm, Coll : D. V. Rao, Reg. No. 2065; Trinket Is. (Nicobar Group), 17.2. 1992, 15 exs., 25-70 mm, Coll : D. V. Rao, Reg. No. 2282; North Reef Is. (North Andaman), 25.3.1993, 5 exs., 47-83 mm, Coll : G. C. Rao & party, Reg. No. 2213; Narcondam Is. (North Andaman), 14.3.1994, 2 exs., 38 & 52 mm, Coll : D. V. Rao, Reg. No. 2556.

Diagnostic features : D. XII, 11-12; A. II, 12; P. 18-19; V. I, 5; L1. 18+8. Depth 1.5-1.65, head 2.9-3.32 in standard length. Body white with three transverse black bars; dorsal and anal fin dusky; distal part of posterior dorsal rays light; spinous dorsal with dark edge; caudal fin light.

Habitat : Found on branching corals in inshore areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Japan and Australia to Tuamotu Island.

***Dascyllus marginatus* (Ruppell, 1828)**

1828. *Pomacentrus marginatus* Ruppell, *Atlas. Reise. N. Afrika. Fische*, p. 38.

1940. *Dascyllus marginatus* : De Beaufort, *Fishes of Indo-Austalian Archipelago*, 8 : 465.

Material examined : Kamorta Is. (Nicobar Group), 16.12.1989, 1 ex. 56 mm, Coll : H. S. Mehta & party, Reg. No. 1553.

Diagnostic features : D. XII, 15; A. II, 14; P. 20; V. I, 5; L1. 18+9. Depth 1.85, head 3.65 in standard length; preorbital and suborbital covered with scales; 4 rows of scales on preopercle; scales on upper part of head reaching to end of snout; caudal fin emarginate. Body dark brown; scales with dark hind border; a black blotch at base of pectoral; lips black; ventrals and soft portion of anal fin dark.

Habitat : Found around branched corals.

Distribution : Indo-Pacific, from Red Sea, Zanzibar, Mauritius, Andaman & Nicobar Is. to China and Queensland to Hawaiian Is.

***Dascyllus trimaculatus* (Ruppell, 1829)**

1829. *Pomacentrus trimaculatus* Ruppell, *Atlas. Reise. Nord. Afrika. Fische. Rothen Meeres.*, p. 39.

1991. *Dascyllus trimaculatus* : Allen, *Damsel Fishes of the World*, p. 109.

Material examined : Narcondam Is. (North Andaman), 14.3.1994, 2 exs., 40 mm, Coll : D. V. Rao, Reg. No. 2555; Rutland Is. (South Andaman), 18.10.1993, 6 exs., 43-68 mm, Coll : D. V. Rao & party, Reg. No. 2832.

Diagnostic features : D. XII, 14; A. II, 14; P. 20; V. I, 5; L1. 18+8. Depth 1.68, head 3.1 in standard length; scale rows on preopercle 4; caudal fin slightly emarginate. Body charcoal black; scale margins black; a white spot on forehead and another on upper side of body; all fins dusky.

Habitat : Found around reef areas in small groups.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Japan and Australia to Marshall and Gilbert Islands.

Genus *Dischistodus* Gill, 1863

***Dischistodus perspicillatus* (Cuvier, 1830)**

(Fig. 200)

1830. *Pomacentrus perspicillatus* Cuvier *Hist. Nat. Poiss.*, 5 : 417.

1991. *Dischistodus perspicillatus* : Allen, *Damsel Fishes of the World*, p. 111.

Material examined : North Reef Is. (North Andaman), 25.3.1993, 1 ex., 135 mm, Coll : G. C. Rao & party, Reg. No. 2208.

Diagnostic features : D. XIII 14; A. II 14; P. 18; V. I, 5; L1. 17+8. Depth 2.25, head 3.3 in standard length; suborbital naked; preorbital scaleless; teeth in two rows in jaws. Body white with two black blotches below dorsal fin and the third blotch across nape; all fins whitish blue; anus dark brown; upper part of pectoral axil black.

Habitat : Found on sandy bottom in inshore reef areas.

Distribution : Indo-West Pacific, from Andaman Is. to China and Australia to Marianas.

Genus *Pomacentrus* Lacepede, 1802

Key to Species

- 1a Suborbital scaleless; teeth biserial; body brown with dark scale edges; a black spot on upper caudal peduncle ***P. tripunctatus***
- 1b Suborbital scaled; teeth uniserial; body overall brown with an illdefined blackish area below soft part of dorsal fin ***P. lividus***

***Pomacentrus lividus* (Bloch & Sch., 1801)**

1801. *Chaetodon lividus* Bloch & Schneider, *Syst. Ichth.*, p. 235.

1980. *Pomacentrus lividus* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 411, fig. 344.

Material examined : Chidiyatapu (South Andaman), 30.7.1987, 2 exs., 78 mm, Coll : H. S. Mehta & party, Reg. No. 1422; Trinket Is. (Nicobar Group), 17.2.1993, 4 exs., 51-73 mm, Coll : D. V. Rao & party, Reg. No. 2281; North Reef Is. (North Andaman), 25.3. 1993, 1 ex., 105 mm, Coll : G. C. Rao & party, Reg. No. 2256.

Diagnostic features : D. XII, 16; A. II, 13; P. 18; V. I, 5; L1. 27. Depth 2.25, head 2.85 in standard length; teeth uniserial in jaws; suborbital scaly; scales on head reaching nostrils. Body light brown; a dark spot at the base of posterior dorsal rays; dorsal and anal fins brown basally; ventral fins grey; pectoral fins pale.

Habitat : Found around coral heads and in lagoons.

Distribution : Indo-West Pacific, from Lakshadweep, coasts of India, Andaman Is. to Marquesas Island.

***Pomacentrus tripunctatus* Cuvier, 1830**

1830. *Pomacentrus tripunctatus* Cuvier *Hist. Nat. Poiss.*, p. 421.

1991. *Pomacentrus tripunctatus* : Allen, *Damsel Fishes of the World*, p. 161.

Material examined : Curlew's Is. (North Andaman), 17.3.1993, 2 exs., 93 mm, Coll : D. V. Rao, Reg. No. 2237.

Diagnostic features : D. XIII, 14; A. II, 14; P. 18; V. I, 5; L1. 17+8. Depth 1.8, head 3.0 in standard length; suborbital serrate; preorbital with 4 spines, directed backwards; scales on head reaching to nostrils; soft dorsal pointed, 8th ray longest. Body brown with dark edges on scales; large black spot on the upper caudal peduncle; fins dusky.

Habitat : Found in shallow coral rubble areas.

Distribution : Indo-West Pacific, from Gulf of Mannar, Andaman Is., Sri Lanka to Australia and Solomon and Vanuatu Island.

Genus *Premnas* Cuvier, 1817***Premnas biaculeatus* (Bloch, 1790)**

(Fig. 201)

1790. *Chaetodon biaculeatus* Bloch, *Ausland. Fische.*, 4 : 11.

1991. *Premnas biaculeatus* : Allen, *Damsel Fishes of the World.*, p. 165.

Material examined : Tarmugli Is. (South Andaman), 3.9.1993, 1 ex., 113 mm, Coll : D. V. Rao & party, Reg. No. 2762.

Diagnostic features : D. X, 16; A. II, 14; P. 16; V.I, 5; L1. 48. Lips thick; preorbital and suborbital each with a long spine; scales beginning on head behind eyes; anterior lateral line scales with tubes; base of dorsal, anal and caudal fins scaly. Body dull reddish-brown with three chalky white transverse bars on body, the 1st from nape over opercle to isthmus, the 2nd from 10th dorsal spine to anal fin origin, the 3rd on caudal peduncle.

Habitat : Found in shallow lagoons in reef areas, associated with Sea anemone.

Distribution : Indo-West Pacific, from Mauritius, to Andaman Is., and Burma, Thailand to china, and New Guinea to Solomon.

Family CIRRIHITIDAE

Small to moderate sized fishes, lower 5-7 pectoral rays unbranched and membranes deeply incised; one or more cirri projecting from interspinous membranes near tips of dorsal spines; a fringe of cirri on the hind edge of anterior nostril; two indistinct flat spines on opercle.

Key to Genera

- 1a Upper most and lower 7 pectoral rays unbranched; lateral line scales 45-49; a single cirrus from membrane near tip of each dorsal spine***Paracirrhites***
- 1b Lower 7 pectoral rays unbranched; lateral line scales 39-42; a tuft of cirri from near tip of each dorsal spine***Cirrhitis***

Genus ***Cirrhitis*** Lacepede, 1803

Cirrhitis pinnulatus (Schneider, 1801)

1801. *Labrus pinnulatus* Schneider, Syst. Ichth., p. 264.

1992. *Cirrhitis pinnulatus* : Rao et al, Environment & Ecology, 11 (4) : 885.

Material examined : Pilomillow (Nicobar Group), 28.3.1992, 1 ex., 180 mm, Coll : P. T. Rajan, Reg. No. 1881.

Diagnostic features : D. X, 11; A. III, 6; P. 14; V. I, 5; L1. 41. Depth 3.0 in standard length; snout obtuse; mouth far below the level of eye; anterior nostril with posterior fringed flap; interorbital space naked; scales on cheek small with about 20 rows; palatine teeth present; hind border of preopercle denticulated; caudal fin truncate. Body light brown, paler below; three rows of white spots about the size of eye and numerous small dark brown spots all over the body.

Habitat : Found in inshore reefs exposed to wave action.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Andaman Is. and Indonesia to Japan and Australia to Hawaiian Islands.

Genus *Paracirrhites* Bleeker, 1875*Paracirrhites forsteri* (Schneider, 1801)

1801. *Grammistes forsteri* Schneider, *Syst. Ichth.*, p. 191.

1986. *Paracirrhites forsteri* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 666, pl. 83.

Material examined : Bambooflat (South Andaman), 9. 8. 1993, 1 ex., 150 mm, Coll : P. T. Rajan, Reg. No. 2402; Narcondam Is. (North Andaman), 14.3.1994, 1 ex., 148 mm, Col : D. V. Rao, Reg. No. 2824; Outram Is. (Ritchie's Archipelago), 28.2.1994, 1 ex., 150 mm, Coll : D. V. Rao & party, Reg. No. 2823; Hut Bay (Little Andaman), 19.3.1995, 1 ex., 124 mm, Coll : D. V. Rao & party, Reg. No. 2892.

Diagnostic features : D. X, 11; A. III, 6; P. 14; V. I, 5; L1. 44-45. Depth 2.56-2.6, head 2.7-2.8 in standard length; interorbital space and snout to nostrils scaly; palatine teeth absent; preopercular margin smooth; upper two and lower six pectoral rays unbranched; tip of each dorsal spine with single cirrus. Body yellowish-brown on back following scale rows with a broad black band on upper side of posterior half of body, extending onto base of caudal fin; broad pale yellow stripe laterally on body and one along base of dorsal; head dark grey with red spots.

Habitat : Found on live coral beds.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Andaman Is., and to Ryukyu Is., Australia to Hawaiian and Society Islands.

Family MUGILIDAE

Body moderately elongate, slightly compressed; head broad and depressed; snout blunt, mouth small, inferior or terminal; premaxilla protractile; eye often partly covered by adipose eye lid; no lateral line; two short widely separated dorsal fins; scales fairly large; axillary scales present below 1st dorsal fin and above pectoral and ventral fins; pectoral fins rather high on body; ventral fins sub-abdominal; caudal fin moderately forked or emarginate. Body mostly silvery.

Key to Genera

- 1a Lower third of upper lip bearing enlarged papillae or crenulations *Crenimugil*
- 1b Lower lip without papillae or crenulations 2
- 2a Pectoral axillary scale rudimentary or absent; body scales without membranous edge *Liza*
- 2b Pectoral axillary scale very long; body scales with membranous edge *Valamugil*

Genus *Crenimugil* Schultz, 1946*Crenimugil crenilabis* (Forsskal, 1775)

1775. *Mugil crenilabis crenilabis* Forsskal, *Descript. Animal.* p. 14, 73.

1986. *Crenimugil crenilabis* : Smith & Heemstra, *Smith's Sea Fishes*, p. 715, fig. 222.1.

Material examined : Car Nicobar Is., 5.9.1988, 1 ex., 120 mm, Coll : H. S. Mehta & party, Reg. No. 2037.

Diagnostic features : D. IV+I, 8; A. III, 9; P. 16; V. I, 5; Ls. 42.; Ltr. 14; scales cycloid with a straight mucus canal; no adipose eye lids; pectoral folded forward reaches beyond eye; upper lip with prominent papillae; teeth present on tongue and absent on lips. Body greenish above, silvery below; pectoral with purplish axillary spot.

Habitat : Found in shallow coastal waters and creeks.

Distribution : Indo-West Pacific, from east coast of Africa, Nicobar Is. to Japan and Tuamotu Island.

Genus *Liza* Jordan & Swainson, 1894

Key to Species

- 1a Anal fin rays 8; preorbital notched anteriorly, edge not serrated; adipose eye lids vestigial *L. vaigiensis*
- 1b. Anal fin rays 9; preorbital unnotched, edge strongly serrate; adipose eye lids partially covering iris *L. melinoptera*

Liza melinoptera (Valenciennes, 1836)

1836. *Mugil melinoptera* Valenciennes, *Hist. Nat. Poiss.*, 11 : 146, pl. 314.

1991. *Liza melinoptera* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Counties*, 2 : 892.

Material examined : Alexandra Is. (South Andaman), 28.11.1990, 2 exs., 155 & 185 mm, Coll: K. V. Raman & party, Reg. No. 1953.

Diagnostic features : D. IV + I, 8 ; A. III, 8; P. 15; V. I, 5 ; Ls. 28; Ltr. 10. Adipose eye lid covered one-third of iris; no teeth in lower jaw; tongue toothed; no pectoral axillary scale; dorsal spines strong; 2nd dorsal fin origin on vertical through middle of anal fin base. Body greenish brown above, silvery below; all fins dusky.

Habitat : Found in shallow coastal waters and creeks.

Distribution : Wide spread in Indo-West Pacific.

Liza vaigiensis (Quoy & Gaimard, 1825)

1825. *Mugil vaigiensis* Quoy & Gaimard, *Voy. Urani. Physic. Zool.*, p. 337, pl. 59, fig. 2.

1991. *Liza vaigiensis* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 895.

Material examined : Little Nicobar, 30.3.1992, 1 ex., 112 mm, Coll : P. T. Rajan, Reg. No. 1955.

Diagnostic features : D. IV+I, 8; A. III, 8; P. 16; V. I, 5; Ls. 27; Ltr. 12. Adipose eye lid vestigial; ciliate teeth on upper lip, few on lower; tongue dentate; scales ctenoid; 2nd dorsal and anal scaly; pectoral bent forward reaches front of eye; pectoral axillary scale absent; caudal fin emarginate. Body light olive above, silvery on sides; dusky streaks along upper scale rows; fins dusky; pectoral fin black.

Habitat : Found in shallow coastal areas and creeks..

Distribution : Wide spread in Indo-West Pacific.

Genus *Valamugil* Smith, 1948

Key to Species

- 1a Adipose eye lids feeble; origin of 2nd dorsal on vertical from anal fin origin *V. buchanani*
- 1b Adipose eye lids well developed; origin of 2nd dorsal on vertical from end of anterior third of anal fin rays *V. cunnesius*

Valamugil buchanani (Bleeker, 1853)

1853. *Mugil buchanani* Bleeker, Ver, Batav. Genoot. Kunst. Wet, 25 : 29

1991. *Valamugil buchanani* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 901.

Material examined : Mayabunder (North Andaman), 9.1.1992, 1 ex., 172 mm, Coll : D. V. Rao, Reg. No. 2191.

Diagnostic features : D. IV+I, 8; A. III, 9; P. 17; V. I, 5; Ls. 34; Ltr. 13. Lips thin; pterygoids and tongue dentate; palatines and vomer edentate; adipose eye lids absent; dorsal and anal fins falcate; 2nd dorsal inserted on vertical from origin of anal fin; pectoral fins folded forward reaches beyond eye; pectoral axillary scale longer and pointed. Body greenish on back, silvery on sides and belly; a dark axillary spot on base of pectoral fin; caudal fin brilliant blue.

Habitat : Found in shallow coastal waters.

Distribution : Wide spread in Indo-West Pacific region.

Valamugil cunnesius (Valenciennes, 1836)

1836. *Mugil cunnesius* Valenciennes, *Hist. Nat. Poiss.*, 11 : 114.

1991. *Valmugil cunnesius* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 901.

Material examined : Chidiyatapu (South Andaman), 23.2.1987, 1 ex., 114 mm, Coll : H. S. Mehta & party, Reg. No. 956; Wrightmyo (South Andaman), 4.2.1989, 1 ex., 122 mm, Coll : G. C. Rao & party, Reg. No. 1959; Car Nicobar Is. 5.9.1988, 4 exs., 145-175 mm, Coll : H. S. Mehta & party, Reg. No. 2082.

Diagnostic features : D. IV+I, 8; A. III, 9; P. 15-16; V. I,5; Ls. 34-36; Ltr. 12. Adipose eye lid well developed; maxilla exposed when mouth shut; minute teeth on lips; no teeth on palatines and pterygoids; tongue dentate; 2nd dorsal fin origin vertical through end of anterior third of anal fin base. Body dark grey on back, silvery below; dark axillary spot on pectoral base.

Habitat : Found in shallow coastal waters and creeks.

Distribution : Wide spread in Indo-West Pacific region.

Family SPHYRAENIDAE

Body elongate, slightly compressed; head large with long pointed snout; mouth large, lower jaw projecting; fang like teeth in both jaws; no teeth on vomer; one or two strong, sharp canines near tip of lower jaw; lateral line well developed; well separated two dorsal fins; ventral fins abdominal in position and well behind pectorals; pectoral fins very short; caudal fin forked.

Genus *Sphyraena* Rose, 1793

Key to Species

- 1a Gill rakers present on 1st arch; no blotches on sides of body 2
- 1b Gill rakers absent on first arch; sides of body with inky blotches*S. barracuda*
- 2a Origin of dorsal fin in front of tip of pectoral fin; inside of mouth orange-yellow
.....*S. obtustaa*
- 2b Origin of dorsal fin behind ventral fin origin and tip of pectoral fins; inside of mouth without any colour 3
- 3a Brown stripe from tip of snout through eye to caudal peduncle*S. flavicauda*
- 3b No stripe along lateral side; body brownish green above, silvery below; all fins yellow.....
.....*S. langsar*

Sphyraena barracuda (Walbaum, 1792)

1792. *Esox barracuda* Walbaum,, *Ichthyologie.*, p. 94.

1986. *Sphyraena barracuda* : De Sylva & Williams, in Smith & Heemstra, *Smith's Sea Fishes*, p. 723, fig. 224.3.

Material examined : Mayabunder (North Andaman), 15.8.1991, 2 exs., 235 mm, Coll : K. Chandra & party, Reg. No. 2084.

Diagnostic features : D. V+I, 9; I, 9; P. 14; V. I, 5; LI. 70-83. Depth 7.1, head 3.25 in standard length; body elongate and slightly compressed; snout long and pointed; edge of operculum rounded,

no produced flap; interorbital space flattened; maxilla extending to level of anterior margin of eye; gill rakers absent; caudal fin bilobed. Body deep green to steelgrey above, silvery below; sides above lateral line with a series of 18-20 faint cross bars angled backwards; irregular black blotches usually present on lower side of body; median fins dusky; tips of rays pale; edge of caudal, pectoral and ventral fins grey.

Habitat : Found around reef areas.

Distribution : Wide spread in Indo-Pacific region.

***Sphyraena flavicauda* Ruppell, 1838**

(Fig. 202)

1838. *Sphyraena flavicauda* Ruppell, *Neue. Wirth. Fauna Abyssinien Gehorig.*, p. 100, pl. 25.

1986. *Sphyraena flavicauda* : De Sylva & Williams, in Smith & Heemstra, *Smith's Sea Fishes*, p. 724, pl. 112, fig. 224.5.

Material examined : Chidiyatapu (South Andaman), 23.10.1989, 1 ex., 182 mm, Coll : H. S. Mehta & party, Reg. No. 1628.

Diagnostic features : D. V+I, 9; A. I, 9; P. 14; V. I, 5; LI. 86. Depth 7.5, head 2.85 in standard length; Body elongate and slightly compressed; head large with long pointed snout; angle of preopercle with a membranous flap; maxilla not reaching to the level of front edge of eye; first gill raker at angle of first gill arch and a second on lower limb; origin of 1st dorsal behind ventral origin and from behind to above tip of pectorals. Body iridescent dark green above, silvery below; a brown stripe from tip of snout through centre of eye and pectoral base of caudal peduncle; dorsal fins dark blue green, anal and ventral fins white; pectoral fins pale with dusky axillary patch; caudal fin dusky yellow.

Habitat : Found in outer reef areas.

Distribution : Western and Central Indo-Pacific.

***Sphyraena langsar* Bleeker, 1854**

1854. *Sphyraena langsar* Bleeker, *Nat. Tijds. Ned. Indie*, 7 : 367.

1922. *Sphyraena langsar* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 4 : 228.

Material examined : Mayabunder (North Andaman), 11.1.1992, 1 ex., 250 mm, Coll : D. V. Rao, Reg. No. 2355; Port Blair (South Andaman), 8.10.1992, 1 ex. 237 mm, Coll : D. V. Rao, Reg. No. 2338.

Diagnostic features : D. V+I, 9; A. II, 8; P. 14; V. I, 5; LI. 85-86. Depth 7.0-7.2, head 2.85-2.9 in standard length; body elongate and slightly compressed maxilla not reaching to front border of eye;

hind margin of preoperculum gently emarginate; posterior angle rectangular and somewhat produced into flap; two gill rakers on first arch; origin of 1st dorsal above or slightly behind vertical through tip of pectoral fins and behind origin of ventral fins. Body brownish grey above, silvery below; fins yellowish.

Habitat : Found in outer reef areas.

Distribution : Indo-West Pacific, from Sri Lanka, Andaman Is., to Australia.

***Sphyraena obtusata* Cuvier, 1829**

1829. *Sphyraena obtusata* Cuvier, *Hist. Nat. Poiss.*, 3 : 350, pl. 10.

1984. *Sphyraena obtusata* : Talwar & Kacker *Commercial Sea Fishes of India*, p. 742, fig. 303.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 2 exs., 223 mm, Coll : G. C. Rao & party, Reg. No. 1428; Diglipur (North Andaman), 25.9.1989, 1 ex., 192 mm, Coll : H. S. Mehta & party, Reg. No. 1432; Mayabunder (North Andaman), 1 ex., 259 mm, 15.8.1991, 1 ex., Coll : K. Chandra & party, Reg. No. 2084; Nancowry Is. (Nicobar Group), 10.2.1993, 1 ex., 262, Coll : D. V. Rao & party, Reg. No. 2316.

Diagnostic features : D. V+I, 9; A. II, 9; P. 14; V. I, 5; LI. 87-92. Body elongate, slightly compressed; head large with long pointed snout; angle of preoperculum triangular; two gill rakers on 1st arch; origin of 1st dorsal in front of tip of pectoral fin. Body grey green above, silvery below; inside of mouth orange-yellow; 1st dorsal dusky, 2nd dorsal and caudal fin yellow with dark margin; pectoral and anal fins yellow; ventral fin white.

Habitat : Found in outer reef areas.

Distribution : Indo-West Pacific, from Pakistan, coasts of India, Andaman & Nicobar Is. to Japan.

Family POLYNEMIDAE

Resemble the mullets in body shape; snout projecting in front of mouth; mouth inferior; adipose eye lid well developed; villiform teeth on jaws and palatines; lower 3-8 pectoral fin rays free and very elongate; caudal fin deeply forked; two dorsal fins.

Key to Genera

- 1a Lateral line nearly straight; pectoral fins inserted low on body; pectoral filamentous rays 5-7 and short ***Polydactylus***
- 1b Anterior part of lateral line rising in a long, low curve; pectoral fins inserted high on body; pectoral filamentous rays 7-8 and very long ***Polynemus***

Genus *Polydactylus* Lacepede, 1803*Key to Species*

- 1a Pectoral fin with 5 free filamentous rays, the longest ray reaching beyond ventrals; pectoral black; lateral line scales 58-64 *P. plebeius*
- 1b Pectoral fin with 7 free filamentous rays, the longest filament reaching ventrals; pectoral fins dusky; lateral line scales 48-50 *P. heptadactylus*

Polydactylus heptadactylus (Cuvier, 1829)

1829. *Polynemus heptadactylus* Cuvier, *Hist. Nat. Poiss.*, 3 : 390.

1991. *Polydactylus heptadactylus* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 909.

Material examined : Campbell Bay (great Nicobar), 26.9.1988, 2 exs., 80 & 155 mm, Coll : H. S. Mehta & party, Reg. No. 2353; Port Blair (South Andaman), 19.11.1992, 1 ex., 154 mm, Coll : D. V. Rao & party, Reg. No. 1431; Kamorta Is. (Nicobar Group), 11.11.1989, 1 ex., 145 mm, Coll : H. S. Mehta & party, Reg. No. 2341.

Diagnostic features : D. VIII+I, 13; A. III, 12; P. 13-14+7; V. I, 5; L1. 49-50; Ltr. 5+1+11. Depth 3.2-3.4, head 3.1-3.3 in standard length; mouth large reaching far behind eye; maxilla scaly; head covered with scales; upper lip absent; pectoral filaments reaching to end of ventrals. Body golden above, light below with distinct dusky blotch on shoulder; pectoral fins black; margin of dorsal, anal and caudal fins dark.

Habitat : Found in shallow coastal areas and creeks.

Distribution : Indo-West Pacific, from Pakistan, coasts of India, Andaman & Nicobar Is. to Indonesia.

Polydactylus plebeius (Broussonet, 1782)

1782. *Polynemus plebeius* Broussonet, *Ichthyologica*, p. 23, pl. 8.

1986. *Polydactylus plebeius* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 721, fig. 223.2.

Material examined : Car Nicobar Is., 19.9.1988, 1 ex., 154 mm, Coll : H. S. Mehta & party, Reg. No. 1917; Port Blair (South Andaman), 31.10.1989, 1 ex., 143 mm, Coll : H. S. Mehta & party, Reg. No. 1437; Rangat Bay (Middle Andaman), 19.8.1991, 1 ex., 215 mm, Coll : K. Chandra & party, Reg. No. 1916.

Diagnostic features : D. VIII+I, 13; A. III, 11; P. 17+5; V. I, 5; L1. 62-63; Ltr. 6+1+13. Depth 3.2-3.25; head 3.1-3.3 in standard length; eyes covered by gelatinous membrane; maxillary scaly; preoperculum serrated; teeth on vomer present; upper lip absent; pectoral rays simple, longest filament reaching beyond tip of ventral fin. Body yellowish grey with dark line along each scale row; fins dusky.

Habitat : Found in shallow coastal waters and creeks.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, to Andaman & Nicobar Is., and to Japan.

Genus *Polynemus* Linnaeus, 1758

*** *Polynemus melanochir* Linnaeus, 1758**

1758. *Polynemus melanochir* Linnaeus *Hist. Nat. Poiss.*, 7 : 513.

1922. *Polynemus melanochir* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 4 : 211.

Material examined : Kamorta Is. (Nicobar Group), 12.11.1989, 2 exs., 111 & 185 mm, Coll : H. S. Mehta & party, Reg. No. 1546; Campbell Bay (Great Nicobar), 23.11.1989, 8 exs., 125-129 m, Coll : H. S. Mehta & party, Reg. No. 1449.

Diagnostic features : D. VIII+I, 11-12; A. III, 15; P.14+7; V. I. 5; Ltr. 6+1+10. Depth 3.0-3.1, maxillary scaly; head covered with scales; upper lip absent; origin of dorsal between ventral and pectoral fins; caudal fin deeply forked, the lobes pointed; pectoral much longer than head, the middle filaments longest reaching to tip of caudal. Body golden brown; pectoral fin black.

Habitat : Found in shallow sandy shores and creeks.

Distribution : Indian Ocean, from Andaman & Nicobar Is. to Indonesia.

Family LABRIDAE

A very large family and the most diverse in size and form. Body shape varies from elongate to oblong and slightly to strongly compressed; snout short to long; mouth usually terminal; lips often fleshy; teeth in jaws conical, usually some canines anteriorly; no teeth on palate; single continuous dorsal fin. Most species are brightly and completely coloured. Juveniles differ in colour from adults. Many species exhibit sexual dichromatism.

Key to Genera

- 1a Posterior margin to preopercle serrate; scales on preopercle less than $\frac{1}{4}$ th size of those on body ***Choerodon***
- 1b Posterior margin of preoperele smooth; scales on preopercle more than $\frac{1}{2}$ size of those on body 2
- 2a Lateral line complete 3
- 2b Lateral line interrupted 9
- 3a Lateral line sloping gradually as it passes from upper end of gill opening to middle base of caudal; gill membranes not joined to isthmus but form a free fold; body very elongate ***Cheilio***

- 3b Lateral line abruptly deflected downward below dorsal to mid-lateral part of caudal peduncle; gill membranes joined to isthmus; body not elongate 4
- 4a Dorsal fin with VIII spines 5
- 4b Dorsal fin with IX spines 6
- 5a Snout very long and tubular, 1.7-2.2 in head; two pairs of canines anteriorly in jaws
.....**Gomphosus**
- 5b Snout not long and tubular, 2.5-3.4 in head; one pair of canines anteriorly in upper jaw, one or two pairs in lower jaw**Thalassoma**
- 6a Lower lip distinctly bilobed, the two lobes separated by a U-shaped notch**Labroides**
- 6b Lower lip not distinctly bilobed 7
- 7a No canine teeth at front of jaws; scales on chest as large as those of rest of body
.....**Stethojulis**
- 7b Canine teeth at front of jaws; scales on chest distinctly small than those of rest of body
.....8
- 8a Lips very thick and fleshy; body depth 2.4-2.7 in SL; vertical band of small scales on preopercle**Hemigymnus**
- 8b Lips not thick and fleshy; body depth 2.3-5.5 in SL; no vertical band of small scales on preopercle**Halichoeres**
- 9a Lateral line with 48-65+15-22 scales**Cymolutes**
- 9b Lateral line with 13-22+5-9 scales 10
- 10a Mouth extremely protractile, the lower jaw very long; its posterior end behind gill membranes; no opercular margin**Epibulus**
- 10b Mouth not protractile; lower jaw not long, not extending posterior to front edge of eye; preopercular margin free 11
- 11a Dorsal profile of snout very steep, nearly vertical; front of head ending in a fleshy keel; anal fin rays 12-14; origin of dorsal fin over rear edge of eye**Xyrichtys**
- 11b Dorsal profile of snout not steep; front of head not ending in a fleshy keel; anal fin rays 8-9; dorsal fin origin at the level of pectoral**Cheilinus**

Genus *Cheilinus* Lacepede, 1802

Key to Species

- 1a Dorsal with X spines, 9 rays; body brown to dark olive with small pale to orange pink spots; head with orange-red spots; median and ventral fins with white dots.....

-*C. chlorurus*
- 1b Dorsal spines IX, 9-11 rays; colour not as in 1a 2
- 2a Prominent fleshy hump on forehead; body greenish-yellow with elongate green markings or dark spots on scales; two black lines posteriorly from eye*C. undulatus*
- 3a Body depth 2.3-2.6 in SL; caudal fin rounded becoming trilobate in adults; body olivaceous with a vertical red line on each scale; head and chest with numerous small red spots and lines*C. trilobatus*
- 3b Depth 2.6-3.3 in SL; caudal rounded to truncate 4
- 4a Caudal fin emarginate; scaly sheath at base of dorsal and anal fins low; lower jaw projecting; body grey-brown with orange red bar on each scale; a series of 8 diagonal maroon lines on lower cheek*C. diagrammus*
- 4b Caudal fin truncate with elongate pointed lobes; scaly sheath at base of dorsal and anal fins well developed; lower jaw not projecting; body blackish with 7 narrow whitish bars, the scales with vertical black streaks; a broad orange-red zone in pectoral region*C. fasciatus*

***Cheilinus chlorurus* (Bloch, 1791)**

1791. *Sparus chlorurus* Bloch, *Nat. Ausland. Fische.*, 5 : 24, pl. 260.

1986. *Cheilinus chlorurus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 689 pl. 94.

Material examined : Bambooflat (South Andaman), 30.11.1992, 1 ex., 144 mm, Coll : P. T. Rajan, Reg. No. 1561; South Reef Is. (North Andaman), 23.3.1993, 2 exs., 221 mm, Coll : G. C. Rao & party, Reg. No. 2242; Great Nicobar Is., 12.2.1994, 1 ex., 76 mm, Coll : D. V. Rao, Reg. No. 2526.

Diagnostic features : D. X, 9; A. III, 8; P. 12; V. I, 5 L1. 15+8. Depth 2.48-2.6, head 2.48-2.9 in standard length; dorsal profile of snout straight; lower jaw slightly projecting; 1st ray of ventral prolonged. Body greenish brown, head with orange spots; body with numerous white and pinkish spots; median and ventral fins with white spots; a black spot basally on first two dorsal fin membranes.

Habitat : Found in sheltered reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman & Nicobar Is., Sri Lanka to Ryukyu Is. and Australia to Tuamotu Islands.

***Cheilinus diagrammus* (Lacepede, 1801)**

1801. *Labrus diagrammus* Lacepede, *Hist. Nat. Poiss.*, 3 : 448, 517. 8 (1) : 45, fig. 5.

Material examined : Bambooflat (South Andaman), 26.11.1992, 3 exs., Coll : P. T. Rajan, Reg. No. 2124.

Diagnostic features : D. IX, 10; A. III, 8; P. 12; V. I, 5; L1. 16+8; Ltr. 2+1+6. Depth 3.0-3.3

head 2.7-2.8 in standard length, head pointed, chin prominent, teeth conical; two canines anteriorly in each jaw; dorsal and anal with low scaly sheath; caudal fin truncate. Body brown, lighter below; 3 or 4 white streaks in front of and behind eye; upper part of head with white short stripes and spots; lower half of head with 8 parallel black streaks; dorsal and anal fins brownish; outer margin of caudal fin with brown markings, middle rays green.

Habitat : Found in reef caves and protected coral areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, to Lakshadweep, Andaman Is. to Philippines and Palau to Marshall Islands.

***Cheilinus fasciatus* (Bloch, 1791)**

1791. *Sparus fasciatus* Bloch, *Nat. Ausland. Fische.*, 5 : 257.

1992. *Cheilinus fasciatus* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8(1) : 45, fig. 4.

Material examined : Port Blair (South Andaman), 18.10.1992, 1 ex., 180 mm, Coll : D. V. Rao, Reg. No. 2107; Curlew's Is. (North Andaman), 23.3.1993, 2 exs, 179 mm, Coll : G. C. Rao & party, Reg. No. 2246.

Diagnostic features : D. IX, 10; A. III, 8; P. 12; V. I, 5; L1. 15+9; Ltr. 2+1+6. Depth 2.45-2.5, head 2.6-2.65 in standard length; maxillary reaching to hind nostril; preopercle smooth; 7 predorsal scales; dorsal and anal fins with scaly sheath; posterior rays of dorsal and anal fins elongated. Body pale yellow with 6 black transverse bands on sides; lower sides of head and belly lighter; narrow white streaks radiating from eye; below eye breaking into spots; dark brown spots on upper part of operculum and on sides; a black streak at base of pectoral fin; caudal yellowish with dark basal and marginal bands; pectoral yellowish.

Habitat : Found in sheltered reef areas.

Distribution : Indo- Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., to Ryukyu Is. and Australia to Tuamotu Islands.

***Cheilinus trilobatus* Lacepède, 1801**

1801. *Cheilinus trilobatus* Lacepède, *Hist. Nat. Poiss.*, 3 : 529.

1986. *Cheilinus trilobatus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 690, pl. 90 & 95.

Material examined : Chidiyatapu (South Andaman), 2.8.1993, 2 exs., 112 mm. (Juvenile), Coll : D. V., Rao, Reg. No. 2773; Rutland Is. (South Andaman), 20.2.1995, 1 ex., 135 mm, Coll : G. C. Rao & party Reg. No. 2831.

Diagnostic features : D. IX, 10; A. III, 8; P. 12; V. I, 5; L1. 15+7. Depth 2.65, head 2.7 in standard length; dorsal profile of head straight to above eye; caudal fin rounded. Body light olivaceous brown with vertical orange-red spots and lines on head and body; pale blue line on each scale; three dark spots on posterior part of body mid-laterally; caudal fin dusky.

Habitat : Found around coral reefs.

Distribution : Indo-Pacific, from east coast of Africa to coasts of India, Andaman Is. to Ryukyu Is., and Australia to Hawaiian Islands.

****Cheilinus undulatus* Ruppell, 1835**

1835. *Cheilinus undulatus* Ruppell, *Neue. Wirb. Fische.*, p. 20.

1986. *Cheilinus undulatus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 690, pl. 95.

Material examined : Bambooflat (South Andaman), 17. 5. 1994, 1 ex. 298 mm, Coll : P. T. Rajan, Reg. No. 2623.

Diagnostic features : D. IX, 10; A. III, 8; P. 12; V. I, 5; L1. 16+8. Dorsal profile of head straight to eye then becoming convex; single row of conical teeth in jaws; rear of dorsal and anal fins elongate; ventral fin reaching to anus. Body olive-green with vertical dark lines on scales; head with two black lines extending upwards from eye and two diagonally downward on snout from eye; median fins yellowish with oblique green bars and spots; posterior margin of caudal fin pale yellow.

Habitat : Found in outer reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., to Philippines and Australia to Tuamotu Islands.

Genus *Cheilio* Lacepede, 1801

***Cheilio inermis* (Forsskal, 1775)**

1775. *Labrus inermis* Forsskal, *Descript. Animal.*, p. 34.

1986. *Cheilio inermis* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 690, pl. 95, fig. 220.17.

Material examined : Outram Is. (Ritchie's Archipelago), 2. 3. 1994, 2 exs., 103 mm, Coll : D. V. Rao, Reg. No. 2954.

Diagnostic features : D. IX, 9; A. III, 12; P. 12; V. I, 5; L1. 48. Body elongate and compressed, head pointed and naked; lips with double inner fold; preopercle with one row of scales; dorsal and anal fins without scaly sheath; a pair of canine teeth anteriorly in jaws; caudal fin slightly rhomboidal. Body brownish yellow with a mid-lateral narrow broken black stripe; a dark spot on sides behind pectorals; caudal fin brownish; other fins hyaline.

Habitat : Found on sandy bottom adjacent to reefs.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa, Seychelles, Andaman Is. to Ryukyu Is., and Australia to Hawaiian Islands.

Genus *Choerodon* Bleeker, 1847

***Choerodon anchorago* (Bloch, 1791)**

1791. *Sparus anchorago* Bloch, *Nat. Ausland. Fische.*, 5 : 108.

1940. *Choerodon anchorago* : de Beaufort *Fishes of Indo-Australian Archipelago*, 8 : 31, fig. 8.

Material examined : Havelock Is. (Ritchie's Archipelago), 21.11.1991, 2 exs., 230 mm, Coll : D. V. Rao, Reg. No. 1735.

Diagnostic features : D. XIII, 7; A. III, 9; P. 15; V. I, 5; L1. 27. Depth 2.53, head 2.75 in standard length; body deep, dorsal profile of snout steep and nearly straight and then angling convexly to dorsal origin; scales on preopercle small; two pairs of small canines in each jaw; head and anterior part of body brown with orange-red dots; lower part of body dusky white; a large black area on back; a transverse white band on mid-side of body below lateral line and white saddle on caudal peduncle; dorsal fin brownish; other fins yellowish-white; base of pectorals dark brown.

Habitat : Found in shallow coral reef areas.

Distribution : Indo-West Pacific, from Andaman Is., Sri Lanka to Philippines and New Guinea to Hawaiian Islands.

Genus *Cymolutes* Gunther, 1861

**Cymolutes lecluse* (Quoy & Gaimard, 1824)

1824. *Xyrichtys lecluse* Quoy & Gaimard, *Voyag. Uranie. Zool.*, p. 284.

1940. *Cymolutes lecluse* : de Beaufort, *Fishes of Indo-Australian Archipelago*, 8 : 52, fig. 11.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 2 exs., 91 & 103 mm, Coll : D. V. Rao & party, Reg. No. 2779.

Diagnostic features : D. IX, 12; A. III, 12; P. 12; V. I, 5; L1. 53+16. Depth 4.3, head 3.3-3.35 in standard length; body elongate and compressed; head naked; snout much curved; eye situated nearer to dorsal profile; lateral line running along upper part of side; a pair of sharp canines in both jaws. Body light greenish dorsally, whitish ventrally with 15-16 narrow dark brown bars on body extending from posterior to pectoral fin to caudal peduncle; cheek with 3 diagonal bluish lines; a diagonal black streak above pectoral fin; dorsal pinkish with blue spots.

Habitat : Found on sandy bottom near coral reef areas.

Distribution : Indo-Pacific, from east coast of Africa to coasts of India, Andaman Is. to Philippines and Australia to Hawaiian Islands.

Genus *Epibulus* Cuvier, 1815

Epibulus insidiator (Pallas, 1770)

1770. *Sparus insidiator* Pallas, *Spicilegia Zoologica*, 8 : 41, pl. 5.

1986. *Epibulus insidiator* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 693, pl. 96.

Material examined : South Reef Is. (North Andaman), 23. 3. 1993, 1 ex., 218 mm, Coll : G. C. Rao & party, Reg. No. 2261; North Reef Is. (North Andaman), 26. 3. 1993, 2 exs., 145 mm, Coll : G. C. Rao & party, Reg. No. 2225.

Diagnostic features : D. IX, 10; A. III, 8; P. 12; V. I, 5; L1. 14+8. Depth 2.1-2.2, head 2.5-2.57 in standard length; mouth oblique, highly protractile; lower jaw extending posteriorly to lower edge of opercle; posterior rays of dorsal and anal fins prolonged; caudal fin truncate, the lobes prolonged. Body dark bluish-red with dark green edges on scales; broad yellow bar on sides at tip of pectoral fin; all fins dark brown; a dark blotch between 1st three dorsal spines.

Habitat : Found on coral reefs.

Distribution : Indo-Pacific, from east coast of Africa to coasts of India, Andaman Is. to Japan and Australia to Tuamotu Island.

Genus *Gomphosus* Lacepede, 1801

Gomphosus caeruleus Lacepede, 1801

(Fig. 203)

1801. *Gomphosus caeruleus* Lacepede, *Hist. Nat. Poiss.*, 3 : 101.

1986. *Gomphosus caeruleus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, P. 693, pl. 97.

Material examined : Curlew's Is. (North Andaman), 17.3.1993, 2 exs., 128 mm, Coll : G. C. Rao, & party, Reg. No. 2236; Rutland Is. (South Andaman), 18.10.1993, 4 exs., 159-225 mm, Coll : D. V. Rao & party Reg. No. 2493, Outram Is. (Ritchie's Archipelago), 2.3.1994, 1 ex., 203 mm, Coll: D. V. Rao & party, Reg. No. 2769; Muvadera (Little Andaman), 16.3.1995, 1 ex., 156 mm, Coll : D. V. Rao, Reg. No. 2897.

Diagnostic features : D. VIII, 13; A. III, 11; P. 15; V. I, 5; L1. 25-26. Depth 3.68-4.0, head 2.39-2.4 in standard length; head naked; snout elongate and tubular; ventral fin short; caudal fin emarginate. Body deep blue-green with red vertical line on each scale; outer part of dorsal, anal and posterior caudal fin blue-green. Other phase of species brownish-yellow with black spot on each scale; elongate blackish spots on head, behind eye; caudal fin black, the margin white.

Habitat : Found in crevices of coral reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman is., Sri Lanka, Cocos-Keeling to Philippines and New Hebrides.

Genus *Halichoeres* Ruppell, 1835

Key to Species

- 1a Dorsal fin rays 11; lateral line scales 26 2
- 1b Dorsal fin rays 11-12; lateral line scales 27-28 3

- 2a Vertical band of scales on behind eye; no dark stripe on body; a series of square black edged white spots along scale rows; yellow spot on body at base of 4th and 5th dorsal spines followed by black blotch *H. hortulanus*
- 2b No band of scales behind eye; a dark zigzag stripe from eye to upper base of caudal; no yellow or black spots at base of dorsal *H. scapularis*
- 3a Dorsal and anal fins with low scaly sheath; head pointed; mouth slightly below level of lower border of eye 4
- 3b Dorsal and anal fins without scaly sheath; head less pointed; mouth much below level of lower border of eye 6
- 4a Dorsal fin rays 14; body dark brown; caudal fin light with a broad vertical dark median band with light ocelli; no black spot at base of caudal fin *H. marginatus*
- 4b Dorsal fin rays 12; body colouration not as in 4a 5
- 5a Body light, with alternating orange-yellow and blue stripes; caudal fin light, no dark median band; a black spot at upper base of caudal fin *H. melanurus*
- 5b Colour yellow, small black spot at front of dorsal, one in middle of the fin another on posterior upper half of caudal *H. chrysus*
- 6a No black blotches on body; three rows of light ocelli on dorsal fin; scales above lateral line with dark centre, below lateral line with a reticulated appearance *H. argus*
- 6b Body with black blotches or bars; no rows of light ocelli on dorsal fin 7
- 7a A dark blotch at base of pectoral fin; body reddish-brown, a blue band from eye to snout and another band from maxillary to below eye *H. nigrescens*
- 7b No dark blotch at base of pectoral fin; colouration not as in 7a 8
- 8a Pectoral rays 14; a boomerang shaped salmon-pink mark on cheek, the long posterior end angles downwards *H. nebulosus*
- 8b Pectoral rays 13; a pink band on the cheek which angles upward as it passes posteriorly
..... *H. margaritaceus*

***Halichoeres argus* (Schneider, 1801)**

(Fig. 204)

1801. *Labrus argus* Schneider, *Syst. Ichth.*, p. 263.

1992. *Halichoeres argus* : Rao et al, *J. Andaman Sci. Assoc.*, 8 (1) : 45.

Material examined : Hut Bay (Little Andaman), 14.9.1990, 2 exs., 68 & 79 mm, Coll : K. V. Raman & party, Reg. No. 2822; Port Blair (South Andaman), 19.11.1992, 1 ex., 65 mm, Coll : D.

V. Rao & party, Reg. No. 2109; Chidiyatapu (South Andaman), 2.8.1993, 2 exs., 66 mm, Coll : D. V. Rao, Reg. No. 2774; Rutland Is. (South Andaman), 16.10.1993, 1 ex., 82 mm, Coll : D. V. Rao & party, Reg. No. 2775; Outram Is. (Ritchie's Archipelago), 1.3.1994, 1 ex., 75 mm, Coll : D. V. Rao & party, Reg. No. 2612; Narcondam Is. (North Andaman), 15.3.1994, 1 ex., 92 mm, Coll : D. V. Rao, Reg. No. 2572; Great Nicobar, 12.2.1994, 1 ex., 75 mm, Coll : D. V. Rao, Reg. No. 2571.

Diagnostic features : D. IX, 11-12; A. III, 12; P. 14; V. I, 5; L1. 28; Ltr. 2+1+9. Depth 3.0-3.4, head 2.8-3.1 in standard length; profile of head straight; a pair of canines in each jaw anteriorly; head scaleless; dorsal and anal without scaly sheath. Body light pink, reticulated below lateral line; a dark band from upper lip to eye and another from chin to below eye; a black stripe on median line of snout, bifurcating before interorbital space and dissolved into blotches behind eye; a vertical bar behind eye; scales above lateral line with dark center; dorsal and anal fins dark brown with row of light ocelli; caudal fin yellowish, distal portion dark.

Habitat : Found on coral reefs and rock pools.

Distribution : Indo-West Pacific, from Lakshadweep, Andaman & Nicobar Is. to Japan and Australia to Fiji.

***Halichoeres chrysus* Randall, 1980.**

1980. *Halichoeres chrysus* Randall, *Pacif. Sci.*, 34 (4) : 415-432.

1984. *Halichoeres chrysus* : Araga, in Masuda *et al*, *Fishes of Japanese Archipelago*, p. 209, pl. 204-H, I.

Material examined : Chidiyatapu (South Andaman), 19.8.1993, 1 ex., 19 mm, Coll : D. V. Rao & party, Reg. No. 2617.

Diagnostic features : D. IX, 12; A. III, 12; P. 13; V. I, 5; L1. 27. Depth 3.75, head 2.5 in standard length; body moderately elongate; anterior lateral line scales with branched tubulues; caudal fin emarginate. Body bright yellow; dorsal and anal fins yellowish; a small black spot at front of dorsal fin and another in the middle of the fin; a small black spot on posterior upper half of caudal peduncle; pectoral, ventral and caudal fins hyaline.

Habitat : Found in coral reef areas.

Distribution : Indo-West Pacific, from Andaman Is. to Southern Japan and Australia.

***Halichoeres hortulanus* (Lacepede, 1801)**

(Fig. 205)

1801. *Labrus hortulanus* Lacepede, *Hist. Nat. Poiss.*, 3 : 449, 518.

1986. *Halichoeres hortulanus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 695, pl. 91 & 92.

Material examined : Havelock Is. (Ritchie's Archipelago), 21.11.1991, 1 ex., 158 mm, Coll : D. V. Rao & party, Reg. No. 2611; Mayabunder (North Andaman), 15.3.1993, 2 exs., 120 & 134 mm,

Coll : G. C. Rao & party, Reg. No. 2275; Chidiyatapu (South Andaman), 15.8.1993, 1 ex., 202 mm, Coll : D. V. Rao, Reg. No. 2776; Rutland Is. (South Andaman), 18.10.1993, 2 exs., 138 & 148 mm, Coll : D. V. Rao & party, Reg. No. 2418; 21.1.1994, 1 ex., 145 mm, Coll : D. V. Rao & party, Reg. No. 2518; Narcondam Is. (North Andaman), 15.3.1994, 1 ex., 40 mm, Coll : D. V. Rao, Reg. No. 2573 & 2542; Little Andaman, 15.3.1995, 2 exs., 53 mm, Coll : D. V. Rao & party, Reg. No. 2776.

Diagnostic features : D. IX, 11; A. III, 11; P. 14; V. I, 5; L1. 26. Depth 2.85-3.1, head 3.0-3.22 in standard length; two pairs of canines in upper jaw and one pair in lower jaw. Body white with longitudinal series of square black edged white spots along scale rows; an yellow spot on back at base of 4th and 5th dorsal spines, followed by a black blotch; a second small spot in middle of base of soft dorsal; head greenish-yellow with irregular orange pink bands; dorsal and caudal fins yellowish.

Habitat : Found on reef slopes in shallow areas.

Distribution : Indo-Pacific, from east coast of Africa to coasts of India, Andaman Is. to Japan and Australia to Society Islands.

***Halichoeres margaritaceus* (Valenciennes, 1839)**

1839. *Julis margaritaceus* Valenciennes, *Hist. Nat. Poiss.*, p. 484.

1940. *Halichoeres margaritaceus* : de Beaufort, *Fishes of Indo-Australian Archipelago*, 8 : 216.

Material examined : Outram Is. (Ritchie's Archipelago), 2. 3. 1994, 2 exs., 50 & 68 mm, Coll : D. V. Rao & party, Reg. No. 2682.

Diagnostic features : D. IX, 11; A. III, 11; P. 13; V. I, 5; L1. 27. Depth 3.1-3.36, head 2.78-2.8 in standard length; anterior pair of teeth of upper jaw with enlarged canines; second pair moderately enlarged and recurved; lower jaw with one pair of canines. Body olivaceous-green on back, the scale edges dark brown, pale ventrally with whitish blotches and a large pink area posteriorly on abdomen; a black spot on opercular flap and a small one behind eye at front of dorsal fin and a large one rimmed in yellow in middle of fin.

Habitat : Found in shallow reef areas.

Distribution : Indo-West Pacific, from Andaman Is. to Ryukyu Is. and Australia.

***Halichoeres marginatus* Ruppell, 1835**

1835. *Halichoeres marginatus* Ruppell, *Neue. Wair. Fische. Rothen. Meres.*, p. 16.

1986. *Halichoeres marginatus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, P. 695, pl. 97 & 99.

Material examined : Car Nicobar Is., 10.8.1996, 1 ex., 90 mm, Coll : H. S. Mehta & party, Reg. No. 1737; North Reef Is. (North Andaman), 25.3.1993, 2 exs., 133 mm, Coll : G. C. Rao & party, Reg. No. 2207; Outram Is. (Ritchie's Archipelago), 28.2.1994, 2 exs., 53 & 60 mm, Coll : D. V. Rao & party, Reg. No. 2596; Narcondam Is. (North Andaman), 15.3.1994, 2 exs., 50 & 68 mm, Coll : D. V. Rao, reg. No. 2595; Little andaman, 15.3.1995, 1 ex., 62 mm, Coll : D. V. Rao & party, Reg. No. 2911.

Diagnostic features : D. IX, 14; A. III, 12; P. 14; V. I, 5; L1. 27-28. Depth 2.8-2.91, head 3.41-3.65 in standard length; head naked; a pair of canines in each jaw. Two phases : One phase dark brown with brown lines along scale rows, a small yellow edged black spot anteriorly and a large one in the middle of dorsal fin; other phase : greenish brown with a blue edged green spot on each scale forming a longitudinal lines; head with irregular bluish oblique bands; caudal fin bluish yellow with broad blue edged orange red crescent area containing blue spots in the middle; basal half of pectoral black, distal half white.

Habitat : Found around boulders in coral rubble and reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman & Nicobar Is. to Philippines and Australia to Marquesas Island.

***Halichoeres melanurus* (Bleeker, 1851)**

(Fig. 206)

1851. *Julis (Halichoeres) melanurus* Bleeker, *Nat. Tijd. Ned. Indie.*, 2 : 251.

1992. *Halichoeres melanurus* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8 (1) : 44.

Material examined : Port Blair (South Andaman), 19.11.1992, 1 ex., 45 mm, Coll : D. V. Rao & party, Reg. No. 2129.

Diagnostic features : D. IX, 12; A. III, 12; P. 14; V. I, 5; L1. 28; Ltr. 2+1+9. Depth and head 3.3 in standard length, eye 3.9 in head; mouth small below the level of eye; head naked; scales origin above middle of eye. Body greenish yellow, lighter below with 11 yellowish white longitudinal bands from eye to caudal peduncle; dorsal fin yellowish with three reddish bands; a black white edged ocellus between 1st and 3rd dorsal rays, and a much smaller ocellus between 1st and 2nd spines; large white edged ocellus on upper part of caudal peduncle; anal fin with three reddish bands; caudal fin yellowish, a distinct black streak behind eye.

Habitat : Found on thick reef areas.

Distribution : Indo-West Pacific, from Andaman Is. to Japan and Australia to Solomon Islands.

***Halichoeres nebulosus* (Valenciennes, 1839)**

(Fig. 207)

1839. *Julis nebulosus* Valenciennes, *Hist. Nat. Poiss.*, 13 : 461.

1986. *Halichoeres nebulosus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 695, pl. 97.

Material examined : North Reef Is. (North Andaman), 11.3.1993, 2 exs., 95 mm, Coll : G. C. Rao & party, Reg. No. 2272; Little Andaman, 23.3.1995, 1 ex., 70 mm, Coll : D. V. Rao & party, Reg. No. 2916.

Diagnostic features : D. IX, 11; A. III, 11; P. 14; V. I, 5; L1. 27. Depth 3.0, head 2.75 in standard

length; head naked; lower and upper jaw with pair of canines in each. Body olivaceous green with large irregular interconnected dark bars; a patch of red area on abdomen; a wide V-shaped pink mark on cheek, the posterior end angles downwards; broken pink bars on snout and head; a large black spot on opercle.

Habitat : Found in inshore sandy areas near reefs.

Distribution : Indo-West Pacific, from east coast of Africa to Lakshadweep, Andaman Is. to Japan and Australia to Society Is.

***Halichoeres nigrescens* Bloch & Sch. 1801**

1801. *Halichoeres nigrescens* Bloch & Schenider, *Syst. Ichth.* p. 263.

1992. *Halichoeres nigrescens* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8(1) : 44.

Material examined : Little Andaman, 14.9.1990, 3 exs., 105-115 mm, Coll : K. V. Raman, Reg. No. 1990.

Diagnostic features : D. IX, 12; A. III, 12; P. 14; V. I, 5; L1. 28; Ltr. 3+1+9. Depth 3.3, head 3.2 in standard length. Body covered with large scales; head naked; scales begin above hind part of eye; lips thick; dorsal and anal fins with scaly sheath; 12 predorsal scales. Body reddish brown, paler below; a bluish band from eye to snout, another band from end of maxillary to below eye; a bluish area on opercle; dorsal fin dusky white with dark ocellus between 5th and 6th spines; a row of white brown blotches on soft dorsal; anal with basal row of white spots; a dark triangular blotch superiorly at the base of pectoral.

Habitat : Found on coral reef areas.

Distribution : Indo-West Pacific, from Persian Gulf, Zanzibar, coasts of India, Andaman Is. to Japan and Australia.

***Halichoeres scapularis* (Bennett, 1831)**

(Fig. 208)

1831. *Julis scapularis* Bennett, *Proc. Comn. Zool. Soc., London*, 1 : 167.

1986. *Halichoeres scapularis* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 696, pl. 97 & 99.

Material examined : Car Nicobar Is., 9.9.1988, 1 ex., 55 mm, Coll : H. S. Mehta & party, Reg. No. 1924; Chidiyatapu (South Andaman), 31.7.1992, 2 exs., 125 & 148 mm, Coll : D. V. Rao, Reg. No. 1969; North Reefs Is. (North Andaman), 26.3.1993, 1 ex., 110 mm, Coll : G. C. Rao & party, Reg. No. 2228.

Diagnostic features : D. IX, 11; A. III, 11; P. 14; V. I, 5; L1. 26. Depth 3.45-3.56, head 2.66-3.2 in standard length; head naked, a patch of 8-9 scales dorsally on opercle; scales begin on head from rear edge of eye; two pairs of canines in upper jaw and one pair in lower jaw. Body brownish

yellow, white below; a black zig-zag stripe from eye, along upper side to upper caudal peduncle; an yellow stripe on snout; scales on body with light vertical pink lines.

Habitat : Found on coral rubble bottom, associated with sea weeds.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman & Nicobar Is. to Japan and Australia to Samoa Islands.

Genus *Hemigymnus* Gunther, 1861

Genus *Hemigymnus melanopterus* (Bloch, 1791)

(Fig. 209)

1791. *Labrus melanopterus* Bloch, *Nat. Ausland. Fische.*, 5 : 136.

1986. *Hemigymnus melanopterus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 696, pl. 98.

Material examined : Havelock Is. (Ritchie's Archipelago), 17.3.1988, 1 ex., 145 mm, Coll : B. Mitra & party, Reg. No. 2385; North Reef Is. (North Andaman), 25.3.1993, 1 ex., 234 mm, Coll : G. C. Rao & party, Reg. No. 2209.

Diagnostic features : D. IX, 11; A. III, 11; P. 14; V. I, 5; L1. 25. Depth 2.42-2.56, head 2.65-2.71 in standard length; head naked ; lips thick; a pair of strong projecting canine teeth in each jaw, caudal fin slightly rounded. Head and anterior part of body greenish-white, shading posteriorly to black due to black edged scales; caudal peduncle and caudal fin light yellow.

Habitat : Found on sandy bottom near reef areas.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is. to Ryukyu Is. and Australia to Samoa Island.

Genus *Labroides* Bleeker, 1851

Labroides dimidiatus (Valenciennes, 1839)

1839. *Cossyphus dimidiatus* Valenciennes, *Hist. Nat. Poiss.*, 13 : 136.

1986. *Labroides dimidiatus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 698, pl. 100.

Material examined : Car Nicobar Is., 10.9.1988, 1 ex., 33 mm, Coll : H. S. Mehta & party, Reg. No. 1840; Chidiyatapu (South Andaman), 2.8.1993, 6 exs., 42-68 mm, Coll : D. V. Rao, Reg. No. 2777; Narcondam Is. (North Andaman), 14.3.1994, 3 exs., 54 mm, Coll : D. V. Rao, Reg. No. 2554.

Diagnostic features : D. IX, 11; A. III, 10; P. 13; V. I, 5; L1. 50-51. Depth 4.25-4.62, head 3.0-3.1 in standard length; head naked, small scales on cheek and operculum; lips thick, lower lip bilobed; a pair of curved canine teeth in each jaw; a canine posteriorly on upper jaw; ventral fins small. Body light blue, pale yellowish white ventrally; a black stripe from tip of snout through eye to end of caudal fin broadening posteriorly.

Habitat : Found on coral reef areas, moving along with larger fishes.

Distribution : Indo- Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman & Nicobar Is. to Japan and Australia to Hawaiian Islands.

Genus *Stethojulis* Gunther, 1862

Key to Species

- 1a Pectoral fin rays 15; body greenish dorsally with whitish longitudinal lines; ventral side white with dark longitudinal lines; small blue edged dark spot at base of caudal fin (Initial phase) *S. strigiventer*
- 1b Pectoral fin rays 12-13; body bluish green above, paler below with 4 bluish, bands bordered with white *S. trilineata*

Stethojulis strigiventer (Bennett, 1832)

1832. *Julis strigiventer* Bennett, *Proc. Zool. Soc., London*, p. 184.

1986. *Stethojulis strigiventer* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 703, pl. 101.

Material examined : Little Andaman, 15.9.1990, 10 exs., 35-58 mm, Coll : K. V. Raman & party, Reg. No. 1923.

Diagnostic features : D. IX, 11; A. III, 11; P. 15; V. I, 5; L1. 25. Depth 3.6-3.85, head 2.9-3.0 in standard length; head naked, teeth in single series in jaws. Body greenish dorsally with white longitudinal lines; whitish ventrally with dark lines; blue edged dark spot at base of caudal fin; caudal fin bluish white.

Habitat : Found on sandy bottom around coral beds in shallow water.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is. to Japan and Australia to Samoa Is.

Stethojulis trilineata (Bloch & Sch., 1801)

(Fig. 210)

1801. *Labrus trilineata* Bloch & Schneider, *Syst. Ichth.*, p. 253.

1992. *Stethojulis trilineata* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8(1) : 43, fig. 2.

Material examined : Chidiyatapu (South Andaman), 15.8.1993, 2 exs., 108 & 116 mm, Coll : D. V. Rao & party, Reg. No. 2770; Rutland Is. (South Andaman), 16.10.1993, 2 exs., 71 mm, Coll : D. V. Rao & party, Reg. No. 2772; Little Andaman, 15.3.1995, 2 exs., 75 & 105 mm, Coll : D. V. Rao, Reg. No. 2908 & 2909.

Diagnostic features : D. IX, 11; A. III, 11; P. 13; V. I, 5; L1. 28. Depth 2.9-3.2, head 2.9-3.15 in standard length; single series of teeth in jaws; maxillary not reaching to below anterior nostril. Body bluish green, paler below with four distinct light bluish bands bordered with white on sides, the 1st band from occiput or along the base of dorsal extend to the base of last dorsal ray, the 2nd from

snout across eye pass along the lateral line to the base of caudal, the 3rd from upper lip, passes along the lower border of eye, ending about six scales behind head, the 4th below corner of mouth to the base of caudal; all fins whitish; dorsal with median longitudinal brown band.

Habitat : Found around reef slopes.

Distribution : Indo-West Pacific, from Maldives, Lakshadweep, Andaman & Nicobar Is. to Japan and Australia to Samoa Islands.

Genus *Thalassoma* Swainson, 1839

Key to Species

- 1a Body pale yellow with 6 wide black vertical bands from back to sides.....*T. jansonii*
- 1b Body dark green with vertical red lines on scales; head with rose-pink bands; pectoral with broad pink area; caudal fin lobes with blue edged pink band *T. lunare*

Thalassoma jansonii (Bleeker, 1856)

1856. *Julis* (*Julis*) *jansonii* Bleeker, *Acta. Soc. Sci. Ind. Ned.*, 1 : 56.

1986. *Thalassoma jansonii* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 446, fig. 374.

Material examined : Hut Bay (Little Andaman), 14.9.1990, 3 exs., 140-162 mm, Coll : K. V. Raman & party, Reg. No. 2827; Port Blair (South Andaman), 30.7.1991, 6 exs., 174-182 mm, Coll : D. V. Rao, Reg. No. 1733; Rutland Is. (South Andaman), 10.10.1993, 5 exs., 155-188 mm, Coll : D. V. Rao & party, Reg. No. 2767 & 2603; Narcondam Is. (North Andaman), 14.3.1994, 2 exs., 195 mm, Coll : D. V. Rao, Reg. No. 2766; Outram Is, (Ritchie's Archipelago), 2.3.1994, 1 ex., 180 mm, Coll : D. V. Rao & party, Reg. No. 2811.

Diagnostic features : D. VIII, 13; A. III, 11; P. 15-16; V. I, 5; L1. 26-28. Depth 3.4-3.65, head 3.0-3.32 in standard length; caudal fin truncate in young and lunate in adults. Body yellowish white with 5-6 wide black vertical bands on back, extendings to sides and on to dorsal fin; head dark above, caudal base light yellow.

Habitat : Found on coral reefs in shallow waters.

Distribution : Indo-West Pacific, from Maldives, Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Ryukyu Is. and Australia to Fiji.

Thalassoma lunare (Linnaeus, 1758)

(Fig. 211)

1858. *Labrus lunaris* Linnaeus, *Syst. Nat.*, ed.10, p. 283.

1986. *Thalassoma lunare* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 705, pl. 104.

Material examined : North Reef Is. (North Andaman), 26.3.1993, 1 ex., 160 mm, Coll : G. C. Rao & party, Reg. No. 2224; Mayabunder (North Andaman), 15.3.1993, 1 ex., 175 mm, Coll : G. C. Rao & party Reg. No. 2274; Bambooflat (South Andaman), 9.8.1993, 1 ex., 172 mm, Coll : P. T. Rajan, Reg. No. 2401; Outram Is. (Ritchie's Archipelago), 1.3.1994, 1 ex., 175 mm, Col : D. V. Rao & part, Reg. No. 2826; Tarmugli Is. (South Andaman), 2.9.1993, 2 exs., 163 & 184 mm, Coll : D. V. Rao & party, Reg. No. 2763.

Diagnostic features : D. VIII, 13; A. III, 11; P. 15, V. I, 5; L1. 25. Depth 3.35-3.69, head 3.4-3.6 in standard length; head naked; caudal fin truncate to lunate. Body green with vertical red lines on each scale; head with many pinkish bands; pectoral fin blue with large pink band in upper part; caudal fin yellow, the lobes with blue edge pink band in upper part; caudal fin yellow, the lobes with blue edged pink band; dorsal and anal fins with blue and pink bands.

Habitat : Found on coral reef areas.

Distribution : Indo-Pacific, from east coast of Africa to coasts of India, Andaman Is. to Japan and Australia to Samoan Islands.

Genus *Xyrichthys* Cuvier, 1815

Xyrichthys pentadactylus (Linnaeus, 1758)

(Fig. 212)

1758. *Corphaena pentadactylus* Linnaeus, *Syst. nat.*, 1 : 447.

1992. *Xyrichthys pentadactylus* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8(1) : 43, fig. 1.

Material examined : Rutland Is. (South Andaman), 16.10. 1993, 3 exs., 158-160 mm, Coll : D. V. Rao & party, Reg. No. 2778; North Reef Is. (North Andaman), 26.3.1993, 1 ex., 68 mm, Coll : G. C. Rao & aparty, Reg. No. 2810.

Diagnostic features : D. IX, 12; A. III, 12; P. 12; V. I, 5; L1. 20+5. Depth 3.2-3.25, head 3.5-3.65 in standard length. Body much compressed, profile from snout to before eye nearly vertical; anterior part of each jaw with pair of strong canines; cheek with 7 rows of scales; upper part of opercle scaly; dorsal fin originating little behind above centre of eye; the anterior dorsal spines are long and flexible; a deep notch on membrane between 2nd and 3rd dorsal spines. Body light reddish brown with dark blotch between lateral line and distal tip of pectoral fin; a round red spot behind eye; a row of five oval reddish yellow spots along 1st to 5th scales of lateral line; scales on the posterior part of body with orange basal spot; dorsal fin dark reddish orange with oblique bars; anal fin orange with two longitudinal lines; caudal fin brown.

Habitat : Found on sandy bottom near reef areas.

Distribution : Indo-West Pacific, from Red Sea, East coast of Africa, Andaman Is. to Okinawajimi Is, and Australia to Samoa.

Family SCARIDAE

Body oblong to moderately elongate ; snout bluntly rounded ; dorsal fin unnotched ; scales large, cycloid ; lateral line scales with arborescent tubes ; head naked, scales on cheek present ; teeth fused to form beak-like plates in the jaws ; one or two short canine teeth posteriorly on the side of the dental plates ; the pharyngeal dentition is unusual ; each of the interlocking upper pharyngeal bone has one to three rows of molariform teeth which form a convex surface that bears against the concave molar-studded surface of the single lower pharyngeal bone ; caudal fin lunate or emarginate. Juveniles differ from adults in colour and adults of most species exhibit sexual dichromatism.

Genus *Scarus* Forsskal, 1775

Key to Species

- 1a Dorsal profile of head rising steeply from mouth to level of eye, then curving sharply ; caudal fin strongly lunate ; no rudimentary lateral row of teeth on upper pharyngeal bones*S. rubroviolaceus*
- 1b Snout not shaped as in 1a ; a row of rudimentary lateral teeth on upper pharyngeal bone 2
- 2a Predorsal scales 4-5; 2 scale rows on cheek.....3
- 2b Predorsal scales 6-7 ; 3 scales rows on cheek 4
- 3a Body brownish, scales on sides darker ; black spot between 1st and 2nd dorsal spines ; black spot at upper pectoral rays.....*S. taeniurus*
- 3b Body uniform reddish-brown ; no black spot in spinous dorsal ; dark band along base of pectoral*S. dubius*
- 4a Pectoral rays 15 ; lips cover more than $\frac{1}{2}$ of dental plates ; dental plates pale salmon ; body light green, scales edged with salmon pink ; broad irregular band of green across lower cheek*S. ghobban*
- 4b Pectoral rays 14 ; lips fully cover dental plates ; dental plates white or blue-green ; body colour not as in 4a 5
- 5a Dental plates blue-green; body reddish brown, centers of body scales dark green with dark spots ; caudal lobes with blue edged orange band*S. niger*
- 5b Dental plates white ; anterior two-thirds of body dark green with orange vermiculations ; rest of the posterior part of body pale ; lip with pink band and lower part of head with pink markings*S. frenatus*

Scarus dubius Bennett, 1828

1828. *Scarus dubius* Bennett, *Zool. Journ.*, 4 : 27.

1940. *Scarue dubius* : De Beaufort, *Fishes of Indo-Australian Archipelago*, 8 : 300.

Material examined : Bambooflat (South Andaman), 26.11.1992. 1 ex., 175 mm, Coll : P. T. Rajan, Reg. No. 2956.

Diagnostic features : D. IX, 11 ; A. III, 9 ; P. 14 ; V. I, 5 ; L1. 24. Depth 2.9, head 3.1 in standard length ; two scale rows on cheek ; 5 predorsal scale rows ; caudal fin rounded. Body reddish-brown above, lighter below ; median fins light yellow, a dark band along base of pectoral fin.

Habitat : Found under coral boulders.

Distribution : Indo-West Pacific, from Mauritius, coasts of India, Andaman Is. to Ryukyu Is. and New Hebrides to Hawaiian Islands.

****Scarus frenatus* Lacepede, 1802**

1802. *Scarus frenatus* Lacepede, *Hist. Nat. Poiss.*, 4 : 13.

1940. *Scarus frenatus* : De Beaufort, *Fishes of Indo-Australian Archipelago* 8 : 290.

Material examined : Narcondam Is. (North Andaman), 14.3.1994, 2 exs., 475 mm, Coll : D. V. Rao, Reg. No. 2545.

Diagnostic features : D. IX, 10 ; A. II, 9 ; P. 14 ; V. I, 5 ; L1. 18 + 8. Depth 2.6, head 3.1 in standard length ; 3 rows of scales on cheek ; lips covering dental plates ; two canine teeth in upper jaw ; 6 predorsal scales ; caudal fin emarginate, the lobes pointed. Anterior two-thirds of body green, rest of the body and caudal peduncle pale ; scales of anterior part and dorsal part of head with orange vermiculations ; each lip with pink band and lower part of head with irregular markings ; dorsal and anal fins blue-green with orange markings ; caudal fin blue-green with large orange area, green markings extending into each lobe ; dental plates white.

Habitat : Found around exposed reef areas.

Distribution : Indo-Pacific, from Seychelles to Andaman Is. and Indonesia to Japan, Australia to Hawaiian Islands.

***Scarus ghobban* Forsskal, 1775**

(fig. 213)

1775. *Scarus ghobban* Forsskal, *Descript Animal.*, p. 28.

1993. *Scarus ghobban* : Rao *et al*, *J. Andaman Sci. Assoc.*, 9 (1 & 2) : 54.

Material examined : Port Blair (South Andaman), 5. 9. 1992, 1 ex., 277 mm, Coll : P. T. Rajan, Reg. No. 2056 ; Bambooflat (South Andaman), 26.11.1992. 1 ex., 153 mm, Coll : P. T. Rajan, Reg. No. 2155.

Diagnostic features : D. IX, 10 ; A. III, 9 ; P. 15 ; V. I, 5 ; L1. 18 + 7. Depth 2.89-2.9, head 2.9 in standard length ; 3 rows of scales on cheek ; lips cover more than half of dental plates ; 6 predorsal scale rows ; caudal fin lunate. Body green dorsally on head and body, the scales narrowly

edged with reddish-orange ; sides and ventral part of head pinkish ; 3 narrow green bands extending from eye posteriorly ; dorsal and anal fins orange-red, the base and margin with blue band ; caudal fin bluishgreen with orange band in each lobe.

Habitat : Found on shallow reefs in bays.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Ryukyu Is. and Australia to Gilbert Island.

****Scarus niger* Forsskal, 1775**

1775. *Scarus niger* Forsskal, *Descript Animal.*, p. 28.

1986. *Scarus niger* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 713, pl. 107.

Material examined : Outram Is. (Ritchie's Archipelago), 26.2.1994, 1 ex., 158 mm, Coll : D. V. Rao & party, Reg. No. 2958; Narcondam Is. (North Andaman), 14.3.1994, 1 ex., 142 mm. Coll : D. V. Rao, Reg. No. 2958.

Diagnostic features: D. IX, 10 ; A. III, 9 ; p. 14; V. I, 5. Three rows of scales on cheek; two canines on upper dental plate; dental plates covered by lips; 7 predorsal; scales; caudal fin slightly rounded. Body reddish-brown, the centers of body scales dark green with small dark spots, except over thorax and abdomen; dental plates blue-green; lips with blue-green bands and another band from corner of mouth to eye; each caudal lobe with blue edged orange band.

Habitat : Found around thick coral reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Ryukyu Is. and Australia to Tuamotu Island.

****Scarus rubroviolaceus* Bleeker, 1847**

(Fig. 214)

1847. *Scarus rubroviolaceus* Bleeker, *Verh. Vanhat. Botav. Genoo.*, 22 : 52.

1986. *Scarus rubroviolaceus* ; Randall, in Smith & Randall, *Smith's Sea Fishes*, p. 713, pl. 106.

Material examined : Rutland Is. (South Andaman), 21.2.1991, 1 ex., 560 mm, Coll : K. V. Raman & party, Reg. No. 2197.

Diagnostic features : D. IX, 10 ; A. III, 9 ; P. 15; V. I, 5; L1. 26. Depth 2.6, head 2.7 in standard length ; dorsal profile rising steeply from mouth to level of eye ; scale rows on cheek 3 ; two canine teeth in upper jaw ; 6 predorsal scales ; caudal fin strongly lunate, the lobes produced. Body greenish-blue, the scale edges narrowly pinkish; upper lip with pink band, above this a broad band ; lower lip and chin with two blue bands, pink band in between ; dental plates blue-green ; median fins bluish with pink band in the middle.

Habitat : Found on coral reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Japan and Australia to Hawaiian Islands.

****Scarus taeniurus* Cuvier & Val., 1839**

1839. *Scarus taeniurus* Cuvier & Valenciennes, *Hist. Nat. Poiss.*, p. 275.

1980. *Scarus taeniurus* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 439, fig. 415.

Material examined : Mayabunder (North Andaman), 28.3.1993, 1 ex., 178 mm, Coll : G. C. Rao & party, Reg. No. 2955.

Diagnostic features : D. IX, 10 ; A. III, 9 ; P. 14 ; V. I, 5 ; L1. 23. Depth 2.8, head 2.86 in standard length ; two scale rows on cheek ; 4 predorsal scales ; dental plates white. Body brownish, scales on sides of body darker ; dorsal fin brown with black spot on membrane between 1st and 2nd spines ; anal fin brown with pale margin ; pectoral fin hyaline ; a dark spot at base of upper pectoral rays.

Habitat : Found in coral reef areas under weed cover.

Distribution : Indo-West Pacific, from Mauritius, Lakshadweep, Andaman Is., and Indonesia to Hawaiian Islands.

Family MUGILOIDIDAE

Characterized by a moderately elongate, little compressed body ; mouth terminal and protractile ; lips somewhat thickened ; jaws with curved canines in an outer row at front ; vomer dentate ; teeth present or absent on palatines ; one stout spine on opercle ; preopercle edge smooth, broadly rounded ; dorsal fin with 4-5 pungent spines and 22-24 rays, the last spine more or less attached by membrane to the 1st ray ; caudal fin rounded or emarginate, usually upper ray prolonged in some species ; lateral line complete.

Genus *Parapercis* Bleeker, 1863

Key to Species

- 1a Lateral line scales 70-78 ***P. tetracanthus***
- 1b Lateral line scales 55-64 **2**
- 2a Front of lower jaw with eight canines in outer row ; black blotch covers most of caudal fin ***P. hexophthalma***
- 2b Front of lower jaw with 6 canines in outer row ; no black blotch in caudal fin **3**
- 3a Second and 3rd dorsal spines small ; body greenish dorsally with 9-10 vertically elongate reddish brown spots with black centers on lower side ; an ocellated black spot on gill cover ***P. clathrata***
- 3b Third and 4th dorsal spines longest ; body grey above, speckled with dark brown ; 9 dusky bars on sides ; mid lateral stripe extending to end of caudal fin ; caudal fin with black spots ***P. xanthozona***

***Parapercis clathrata* Ogilby, 1911**

(Fig. 215)

1911. *Parapercis clathrata* Ogilby, *Proc. Royl. Soc., Queensland.*, 23 : 41.

1984. *Parapercis clathrata* : Yoshino, in Masuda *et al*, *Fishes of Japanese Archipelago*, p. 292, pl. 261H.

Material examined : South Reef Is. (North Andaman), 23. 3. 1993, 2 exs., 45 & 207 mm, Coll: G. C. Rao & party, Reg. No. 2223.

Diagnostic features : D. IV, 20 ; A. I, 17 ; P. 17 ; V. I, 5 ; L1. 58. Depth 6.9, head 3.98 in standard length ; no palatine teeth ; 6 canine teeth at front of lower jaw. Body greenish-brown above with a row of small dark blotches, shading to white below with a series of 9 vertically elongate reddish-brown spots with black centres; an ocellated black spot above gill opening; head and lower jaw with reddish blotches ; caudal fin black with a broad yellowish middle zone and scattered black spots.

Habitat : Found in shallow coral reef areas.

Distribution : Indo-West Pacific, from Persian Gulf, coasts of India, Andaman Is. to Ryukyu Is. and Australia to Samoa Is.

***Parapercis hexophthalma* (Ehrenberg, 1829)**

1829. *Percis hexophthalma* Ehrenberg, in Cuv. & Val. *Hist. Nat. Poiss.*, p.

1986. *Parapercis hexophthalma* Heemstra, in Smit & Heemstra *Smith's Sea Fishes*, p. 739, pl. 113.

Material examined : Wandoor (South Andaman), 4.12.1990, 3 exs., 191-215 mm, Coll : K. V. Raman & party, Reg. No. 1743.

Diagnostic features : D. V, 21 ; A. I, 17 ; P. 17 ; V. I, 5 ; L1. 59-62. Depth 4.5-5.1, head 3.2-3.6 in standard length ; vomer with a patch of teeth ; palatines edentate ; snout naked. Body light green above, speckled with brown ventrally ; a series of large elliptical whitish spots encircling small black spots along side of body ; head with small dark brown spots ; a broad black blotch on caudal fin.

Habitat : Found on coral rubble areas around protected reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is. to Japan and Australia to Fiji Islands.

***Parapercis tetracanthus* (Lacepede, 1801)**

1801. *Labrus tetracanthus* Lacepede, *Hist. Nat. Poiss.*, 3 : 428.

1991. *Parapercis tetracanthus* : Kamla Devi & Rajan *J. Andaman Sci. Assoc.*, 7(2) : 97, fig. 2.

Material examined : Little Andaman, 14.9.1990, 2 exs., 157 & 201 mm, Coll : K. V. Raman & party, Reg. No. 1612.

Diagnostic features : D. V, 21 ; A. I, 17 ; P. 18 ; V. I, 5 ; L1. 70-72. Depth 5.9-6.0, head 3.1-3.2 in standard length ; posterior nostril a long rounded opening ; opercle with a flat spine superiorly ; dorsal rays not filamentous ; caudal fin slightly rounded. Body yellowish brown ; two narrow brown bands from head to caudal, and 8-9 broad transverse bands connecting the longitudinal bands ; an ocellus on scapular region ; dorsal with 3 rows of longitudinal dark brown spots ; caudal fin with black spots.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from Andaman Is. to Japan, Solomon and Samoa Islands.

***Parapercis xanthozona* (Bleeker, 1849)**

1849. *Percis xanthozona* Bleeker, *Verh. Bat. Gen.*, 8 : 55.

1986. *Parapercis xanthozona* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 741, pl. 113.

Material examined : Bambooflat (South Andaman), 26.11.1992, 2 exs., 136 & 142 mm, Coll : P. T. Rajan, Reg. No. 2112.

Diagnostic features : D. V, 21 ; A. I, 17 ; P. 16 ; V. I, 5 ; L1. 59. Depth 6.2, head 3.9-4.3 in standard length ; 6 canine teeth at front of lower jaw ; palatines edentate ; caudal fin slightly rounded, the upper corner slightly prolonged. Body yellowish-brown with mid-lateral white stripe extending to end of caudal fin, above this stripe speckled with dark brown, below with 8-9 dusky bars ; anal and caudal fins with black spots.

Habitat : Found in reef areas.

Distribution : Indo-West Pacific, from east coast of Africa, Mauritius, Andaman Is. to Japan and Australia to Solomon Is.

Family TRIPTERYGIIDAE

Small fishes ; dorsal fin in three parts, 1st of 3-4, 2nd of 8-16 spines, 3rd of 8-12 rays ; ventral fin with 2 rays and one spine ; jaws with conical teeth ; scales ctenoid ; orbital tentacles present ; gill openings wide ; lateral line incomplete.

Genus *Tripterygion* Risso, 1826

****Tripterygion trigloides* Bleeker, 1858**

1858. *Tripterygion trigloides* Bleeker, *Nat. Tijds. Ned. Indie*, 15 : 234.

1980. *Tripterygion trigloides* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 534, fig. 453.

Material examined : South Bay (Little Andaman), 16.3.1995, 1 ex., 30 mm, Coll : D. V. Rao & party, Reg No. 2888.

Dignostic features : D. III + XIII + 10 ; A. 19 ; P. 16 ; V. I, 2. Depth 4.75, head 3.25 in standard length ; mouth slightly oblique ; anterior nostril tubular with a bilobed tentacle ; lower rays of pectoral

fin undivided and thickened ; head, nape and back upto anterior spines of second dorsal, base of pectoral and ventral side of body naked ; pored lateral line scales 21. Body pink ; lower part of head from below lower part of eye with black dots extending onto base of pectoral ; four faint dusky bars on sides of body.

Habitat : Found under coral stones.

Diagnostic features : Indo-West Pacific, from Lakshadweep, east coast of India, Andaman Is. to Philippines.

Family BLENNIIDAE

Small fishes ; no scales ; teeth in jaws in a single row, lower jaw often with canines ; many species with cirri and crest on head ; single dorsal fin, often spinous portion separated by a notch ; caudal fin free or confluent with last ray of dorsal or anal ; ventral fins inserted before pectorals with one hidden spine and 1–4 segmented rays ; caudal fin rounded.

Key to Genera

- 1a Gill membranes free from isthmus ; teeth slender, movable, more than 140 in each jaw (except in *Rhabdoblennius* & *Ecsenius*) 2
- 1b Gill membranes attach to isthmus ; teeth in jaws less than 70, fixed 9
- 2a Teeth more than 140 in each jaw, movable, last anal ray free from caudal (except *Salaria*) 3
- 2b Teeth in lower jaw not more than 70, fixed or movable ; last anal ray attached to caudal by membrane 8
- 3a Caudal fin without branched rays, or not more than 7 branched rays ; pectoral usually with 15-17 rays 4
- 3b Middle 9 rays of caudal always branched ; pectoral usually with 14 rays 5
- 4a Nuchal cirri present, ventrals I, 2 ; dorsal with X-XI spines ; depth 2.8-3.5, lateral line continuing on caudal *Astrosalaria*
- 4b Nuchal cirri absent ; ventrals I, 4 ; dorsal with XIII-XVII spines ; depth 6.0-10.0 ; lateral line usually absent or limited to a few pores anteriorly *Andamia*
- 5a Ventrals I, 4 teeth on vomer present *Entomacrodus*
- 5b Ventrals I, 2–3 ; no teeth on vomer 6
- 6a Last anal ray attached to caudal penduncle ; segmented ventral rays 2 *Salaria*
- 6b Last anal ray not attached to caudal peduncle ; segmented ventral rays 3 7
- 7a Posterior dentary canines present or absent in both sexes ; lateral line consisting of continuous portion followed posteriorly by 1-20 or above by-pored tubes in skin ; supra-orbital cirrus simple, flap-like or highly branched *Istiblennius*

- 7b Posterior dentary canines present in both sexes ; lateral line consisting of continuous anterior portion followed posteriorly by 1-5 bi-pored tubes in skin ; supra-orbital cirrus simple or tiny branched at tip**Blenniella**
- 8a Supra-orbital and nuchal cirrus absent ; caudal rays not forked ; teeth 40-50 in lower jaw, more than 100 in upper jaw**Ecsenius**
- 8b Supra-orbital and nuchal cirrus present ; caudal fin with middle 9 rays forked ; teeth 40-50 in both jaws**Rhabdoblennius**
- 9a Body depth less than 8.0 ; dorsal rays below 40 ; dorsal and anal fins connected to caudal fin broadly with membrane**Pteroscirtes**
- 9b Body depth more than 15.0 ; dorsal rays more than 100 ; dorsal and anal fins confluent with caudal**Xiphasia**

Genus *Astrosalarias* Whitely, 1993

Astrosalarias fuscus (Ruppell, 1835)

1835. *Salarias fuscus* Ruppell, *Neue. Wirbe. Fische.*, p. 135.

1951. *Astrosalarias fuscus* : De Beaufort & Chapman, *Fishes of Indo-Australian Archipelago*, 9 : 225.

Material examined : North Reef Is. (North Andaman), 25.3.1993, 2 exs., 110 mm, Coll : G. C. Rao & party, Reg. No. 2255.

Diagnostic features : D. XI, 20-21 ; A. II, 19 ; P. 16 ; V. I, 2. Depth 2.96-3.2, head 3.77-3.95 in standard length. No crest on head ; nuchal cirri present ; upper lip crenulate, lower lip smooth ; lateral line curving down behind pectoral ; dorsal fin unnotched. Head and body chocolate brown, lower sides lighter ; upper half of pectoral base with black spot ; pectoral and caudal fins light yellow.

Habitat : Found on staghorn corals.

Distribution : Indo-Pacific, from Red Sea, coasts of India, Andaman & Nicobar Is., Philippines to Tonga Islands.

Genus *Andamia* Blyth, 1859

Andamia heteroptera (Bleeker, 1857)

1857. *Salarias heteropterus* Bleeker, *Acta. Soc. Indo-Neerl.*, 2 : 65.

1951. *Andamia heteroptera* : De Beaufort & Chapman, *Fishes of Indo-Australian Archipelago*, 9 : 260.

Material examined : Barren Is. (Middle Andaman), 25.3.1990, 5 exs., 122-126 mm, Coll : B. Mitra & party, Reg. No. 1551.

Diagnostic features : D. XIV, 19-20 ; A. II, 24 ; P. 15 ; V. I, 4. Nasal cirrus simple ; supra-orbital cirrus equal to eye diameter ; snout evenly rounded ; eyes project from dorsal outline ; lips crenulate ; no notch between spinous and soft portions of dorsal ; last ray of dorsal free from caudal in both

sexes. In males body dark above, lighter below with numerous irregular vermiculate lines ; sides of head and snout with rounded and elongate dark spots ; dorsal fin black, a narrow silvery line along edge ; distal part of caudal and anal fins black ; in females : head and body chocolate brown, throat and ventral surface lighter ; base of pectoral and upper third of fins spotted ; caudal fin rays dark-brown, the membranes transparent.

Habitat : Found under rocks near reef areas.

Distribution : Indo-West Pacific, from Andaman Is. to Philippines and New Guinea.

Genus *Blenniella* Reid, 1943

Blenniella bilitonensis (Bleeker, 1858)

1858. *Salarias bilitonensis* Bleeker *Nat. Tijds. Ned. Indie*, 15 : 231.

1994. *Blenniella bilitonensis* : Springer & Williams, *Smithsonian Contributions to Zoology*, No. 565, p. 43, fig. 14, 15.

Material examined : Shoal Bay (South Andaman), 27.4.1978, 1 ex., 133 mm, Coll : S. Chakrapani, Reg. No. 1315.

Diagnostic features : D. XIII, 20 ; A. II, 21 ; P. 14 ; V. I, 3. Depth 5.9, head 4.5 in standard length ; crest on head present in males only ; nuchal cirrus absent ; supra-orbital cirrus simple ; lips smooth ; dorsal fin notched. Body light brown with dark vertical bands on middle of sides ; lower side with horizontal white dashes, edged with black ; upper corner of opercle with blue-black spot ; two narrow white dashes behind eye ; dorsal fin with dark wavy lines ; pectoral fin with small black spots on middle rays.

Habitat : Found in tide pools.

Distribution : Indo-West Pacific, from Andaman Is. Indonesia to Ryukyu Islands.

Blenniella cyanostigma (Bleeker, 1849)

1849. *Salarias cyanostigma* Bleeker, *Ver. Bat. Gen.*, 22 : 5, 7, 18.

1994. *Blenniella cyanostigma* : Springer & Williams, *Smithsonian Contributions to Zoology*, No. 565, p. 23, fig. 7.

Material examined : Car Nicobar Is., 5. 9. 1988, 2 exs., 122 mm, coll : H. S. Mehta & party, Reg. No. 1570.

Diagnostic features : D. XIII, 20 ; A. II, 22 ; P. 14 ; V. I, 3. Depth 5.6, head 5.3 in standard length ; both sexes with low occipital crest ; nuchal cirrus absent ; supra-orbital cirrus simple, rod-like ; single well developed pointed canine on either side of jaw ; dorsal fin with distinct notch. Head dark brown, lower side creamy ; a dark streak across snout and upper lip ; upper corner of operculum with black spot ; white specks on lower part of cheek and base of pectoral ; body with 9 vertical bands on sides ; black ringed white spots on posterior part of body ; three narrow black longitudinal lines on middle side ; dorsal with white wavy lines ; caudal fin with two dark bars and spots.

Habitat : Found in rocky shores.

Distribution : Indo-West Pacific, from Andaman Is., Sumatra to Philippines and Solomon to Samoa Islands.

***Blenniella periophthalmus* (Valenciennes, 1836)**

(Fig. 216)

1836. *Salarias periophthalmus* Valenciennes, in Cuv. & Val., *Hist. Nat. Poiss.*, p. 311.

1994. *Blenniella periophthalmus* : Springer & Williams, *Smithsonian Contributions to Zoology*, No. 565, p. 65, fig. 19, 22.

Material examined : Car Nicobar Is., 9.9. 1989, 3 exs., 82-105 mm, Coll : H. S. Mehta & party, Reg. No. 1560 ; Rutland Is. (South Andaman), 25.1.1994, 1 ex, 94 mm, Coll : D. V. Rao & party Reg. No. 2523.

Diagnostic features : D. XIII, 19-20 ; A. II, 20-21 ; P. 14 ; V. I, 3. Depth 4.35-4.5, head 5.8-5.95 in standard length. Nuchal cirrus present ; sub-orbital cirrus simple, females without crest ; upper lip crenulate ; dorsal fin notched. males with 6 dusky bands on body, each band with a pair of vertical pale spots ; spinous dorsal with dark spots, soft dorsal with dusky lines ; females : similar to males but less distinctly marked, except spotting on caudal peduncle ; body with fine dark specks.

Habitat : Found on rocky shores.

Distribution : Indo-Pacific, from east coast of Africa to Ryukyu Is. and Marquesas Islands.

Genus *Ecsenius* Mc Culloch, 1923

***Ecsenius lineatus* Klausewitz, 1962**

1962. *Ecsenius lineatus* Klausewitz, *Sneck. Biol.*, 43(2) : 145.

1988. *Ecsenius lineatus* : Springer, *Smithsonian Contributions to Zoology*, No. 465, p. 50, fig. 31.

Material examined : Havelock Is. (Ritchie's Archipelago), 24.11.1987, 2 exs., 53 mm, Coll : B. Mitra & party, Reg. No. 1395 ; Ross Is. (South Andaman), 17.10.1989, 6 exs., 42-56 mm, Coll : B. Mitra & party, Reg. No. 1430 ; Car Nicobar Is., 5.9.1988, 3 exs., 62-71 mm, Coll : H. S. Mehta & party, Reg. No. 1572.

Diagnostic features : D. XII, 16-17 ; A. II, 18 ; P. 12-13. Posterior canines present on each side of jaw ; cirrus present on posterior rim of anterior nostril ; mouth inferior ; dorsal fin notched. Colour yellowish above, lower sides pearly-white ; several black blotches arranged in a row from eye to caudal ; head with yellow stripes.

Habitat : Found on reef areas.

Distribution : Indo-West Pacific, from Mauritius, Maldives, Andaman Is., Sri Lanka to Japan and Australia.

Genus *Entomacrodus* Gill, 1859

Entomacrodus striatus (Quoy & Gaimard, 1836)

1836. *Salarias striatus* Quoy & Gaimard, in Cuv. & Val. *Hist. Nat. Poiss.*, 11 : 309.

1986. *Entomacrodus straitus* : Springer, in Smit & Heemstra, *Smith's Sea Fishes*, p. 746, fig. 235.13.

Material examined : Barren Is. (Middle Andaman), 24.3.1990, 3 exs., 42-50 mm, Coll : B. Mitra & party, Reg. No. 1573.

Diagnostic features : D. XIII, 15 ; A. II, 16 ; P. 14 ; V. I, 4. Depth 4.9-5.1, head 3.9-4.1 in standard length. Nasal cirrus with 5 cilia ; superior orbital cirrus with 6 filaments ; nuchal cirrus simple and short ; upper lip crenulate ; pre-opercular pore single ; last dorsal ray attached to caudal peduncle by membrane. Colour pale yellow with numerous small black dark spots form into irregular large blotches on upper side ; upper lip dusky ; dorsal and caudal fins with dark spots in oblique rows.

Habitat : Found on outer reef areas.

Distribution : Indo-West Pacific, from east coast of Africa, Lakshadweep, coasts of India and Andaman Islands.

Genus *Istiblennius* Whitely, 1943

Key to Species

- 1a Margin of one or both lips crenulate *I. lineatus*
- 1b Margin of both lips entire 2
- 2a Orbital cirrus branched ; nape cirrus absent *I. dussumieri*
- 2b Orbital cirrus simple ; nape cirri present or absent *I. edentulus*

Istiblennius dussumieri (Valenciennes, 1836)

1836. *Salarias dussumieri* Valenciennes, in Cuv. & Val. *Hist. Nat. Poiss.*, 11 : 103.

1986. *Istiblennius dussumieri* : Springer, in Smith & Heemstra, *Smith' Sea Fishes*, p. 748, fig. 235.17.

Material examined : Rutland Is. (South Andaman), 25.1.1994, 1 ex., 98 mm, Coll : D. V. Rao & party, Reg. No. 2521 ; Chidiyatapu (South Andaman), 2.3.1988, 2 exs., 95 & 103 mm, Coll : Kamla Devi, Reg. No. 1396.

Diagnostic features : D. XIII, 21 ; A. II, 20 ; P. 14 ; V. I, 3. Depth 5.8 and 6.2, head 9.8 and 5.1 in standard length ; males with crest on head and females without crest ; cirri on nape absent ; nuchal cirri absent ; no larger canines. Body with six pairs of dusky bands ; margin of soft dorsal and anal fins dusky ; dark spots distally between first two dorsal spines.

Habitat : Found on coral rubble areas.

Distribution : Indo-Pacific, from east coast of Africa to Samoa Islands.

***Istiblennius edentulus* (Schneider, 1801)**

(Fig. 217)

1801. *Blennius edentulus* Schneider, in Bloch & Sch., *Syst. Ichth.* p. 172.1986. *Istiblennius edentulus* ; Springer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 748, fig. 235.18.

Material examined : Ross Is. (South Andaman), 17.10.1989, 7 exs., 109 mm, Coll.: H. S. Mehta & party, Reg. No. 1429 & 1556.

Diagnostic features : D. XIII, 20-21 ; A. II, 21-22 ; P. 14 ; V. I, 3. Depth 4.5-5.2, head 5.3-5.45 in standard length ; cirrus on each side of nape ; males with crest on head ; female without crest ; lips smooth ; no canines ; last dorsal ray membrane reaching onto first caudal ray. Males dusky with 5-6 pairs of bands on body ; diagonal pale stripes in dorsal fin ; females dusky, but paler ; posterior bands on body broken into spots ; dorsal fin with spots.

Habitat : Found in coral-rubble areas.

Distribution : Widely distributed in Indo-Pacific region.

***Istiblennius lineatus* (Valenciennes, 1836)**

(Fig. 218)

1836. *Salarias lineatus* Valenciennes, in Cuv. & Val, *Hist. Nat. Poiss.*, 11 : 314.1994. *Istiblennius lineatus* : Springer & Williams, *Smithsonian Contributions to Zoology*, No. 565, p. 98, fig. 32 & 33.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 1 ex., 110 mm, Coll : D. V. Rao & party, Reg. No. 2425 ; 25.1.1994, 1 ex., 133 mm, Coll : D. V. Rao & party, Reg. No. 2522.

Diagnostic features : D. XIII, 22 ; A. II, 23 ; P. 14 ; V. I, 3. Depth 4.9-5.0, head 5.2 in standard length ; upper lip crenulate, no canine teeth ; crest on head well developed in males. Body brownish, lighter below, sides with 6 narrow black bands, breaking up into spots on caudal peduncle ; faint dusky vertical bars on body ; head with wavy stripes and spots ; dorsal fin with oblique narrow brown stripes.

Habitat : Found in intertidal reef areas.

Distribution : Indo-Pacific, from coasts of India, Lakshadweep, Andaman Is., Sri Lanka to Japan.

Genus *Pteroscirtes* Ruppell, 1830***Key to Species***

- 1a First dorsal spine distinctly longer than fourth ; dorsal rays 14-17 ***P. mitratus***
- 1b First dorsal spine not longer than fourth ; dorsal rays 18-21 ***P. breviceps***

****Pteroscirtes breviceps* (Valenciennes, 1836)**

(Fig. 219)

1836. *Blennius breviceps* Valenciennes in Cuv. & Val. *Hist. Nat. Poiss.*, 11 : 283.

1986. *Pteroscirtes breviceps* : Springer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 753, fig. 235.35.

Material examined : Rutland (South Andaman), 17.10.1993, 2 exs., 81 mm, Coll ; D. V. Rao & party, Reg. No. 2957.

Diagnostic features : D. XI, 19 ; A. II ; 20 ; P. 15 ; V. 1, 5. Depth 5.1, head 3.47 instandard length ; mandibular cirrus simple ; nuchal cirri absent ; supra-temporal canal with 3 pores ; canine on lower jaw long and pointed. Colour light brown with a broad dark brown stripe from snout through eye to caudal peduncle, another dark stripe along dorsal fin rays.

Habitat : Found in weedy areas near dead coral rocks.

Distribution : Indo-West Pacific, from east coast of Africa, Andaman Is. and New Guinea to Japan.

***Pteroscirtes mitratus* Ruppell, 1830**

1830. *Pteroscirtes mitratus* Ruppell, *Atlas. Reise, Nordl. Afrika. Fische Rothen Meeres*, p. 111, pl. 28, fig. 1.

1986. *Pteroscirtes mitratus* : Springer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 753, pl. 116.

Material examined : Chidiyatapu (South Andaman), 19.8.1993, 1 ex., 42 mm, Coll : D. V. Rao & party, Reg. No. 2405.

Diagnostic features : D. XI, 15; A, II, 14 ; P. 15; V. I, 3. Depth 4.3, head 3.5 in standard length; large canine in lower jaw and a small one in upper jaw; cirri above eye; small skinny tentacles behind eye, on opercle, at nape and chin; first three spines of dorsal longer than others and separated by a small notch from the rest of the fin ; last dorsal and anal rays joined to caudal peduncle by membrane. Colour brownish-white, speckled and mottled; five distinct dark blotches on body; dark edged ocelli dorsally; dorsal and anal fins speckled; caudal and pectoral fins white.

Habitat : Found in sea weeds near dead coral patches.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Samoa Islands.

Genus *Rhabdoblennius* Ruppell, 1828

***Rhabdoblennius snowi* (Fowler, 1928)**

1928. *Blennius snowi* Fowler, *Mem. B. P. Bishop Mus.*, 10 : 431.

1951. *Rhabdoblennius snowi* : Weber & Chapman, *Fishes of Indo-Australian Archipelago*, 9 : 350.

Material examined : Indira Point (Great Nicobar), 15.9.1988, 1 ex., 84 mm, Coll : H. S. Mehta & party, Reg. No. 1441.

Diagnostic features : D. XII, 18; A. II, 20; P. 14; V. I, 3. Depth 6.25, head 4.45 in standard length; no crest on head; nasal and supra-orbital cirrus simple; nuchal cirrus absent; snout and lips projecting beyond level of forehead; single long slender canine on either side of labial teeth. Dorsal side of head and nape tan, a light narrow band extends from preopercle to throat; cheek and upper lip dark brown; dark oval spot on opercle; five spots around posterior boarder of eye; irregular oblong vertical blotches on body; a black spot on membrane between first two dorsal spines; tips of anal rays dusky; a dark patch at base of middle caudal rays; lower third of caudal fin dark.

Habitat : Found in rocky shores.

Distribution : Indo-West Pacific, from Andaman Is., East Indies, Christmas Is. and New Hebrides.

Genus *Salarias* Cuvier, 1816

Key to Species

- 1a Low crest on head; canines in lower jaw ; dorsal fin spines XIII*S. bleekeri*
- 1b No crest on head; canines in jaws; dorsal fin spines XII*S. fasciatus*

Salarias bleekeri Chapman, 1951

1951. *Salarias bleekeri* Chapman, in De Beaufort & Chapman *Fishes of Indo-Australian Archipelago*, 9 : 338.

Material examined : Barren Is. (Middle Andaman), 28.3.1990, 1 ex., 135 mm, Coll : B. Mitra & party, Reg. No. 1576.

Diagnostic features : D. XIII, 20; A. II, 20; P. 14; V. I, 3. Depth 5.8, head 4.5 in standard length; low crest on head; nasal cirrus present; supra-orbital and nuchal cirri slender; lips smooth; canines in lower jaw. Body brown, ventral side silvery; two lines of black edged silvery bars on sides and vertical bands on middle of sides; posterior sides of body with white dots; numerous irregularly spaced white centered black spots on head; outer third of soft dorsal with three rows of oval spots between rays; caudal fin with white dots in horizontal lines.

Habitat : Found around coral rubble areas.

Distribution : Indian Ocean, from Andaman Is. to Sumatra.

Salarias fasciatus (Bloch, 1786)

1786. *Blennius fasciatus* Bloch, *Nat. Ausland Fische*, 2 : 110, pl. 162.

1986. *Salarias fasciatus* : Springer, in Smith & Heemstra, *Smith's Sea Fishes*, p. 754, pl. 115.

Material examined : Car Nicobar Is., 5.9.1988, 9 exs., 86-98 mm, Coll : H. S. Mehta & party, Reg. No. 1557; Pillomillow (Nicobar Group), 31.3.1992, 2 exs., 68 mm, Coll : P. T. Rajan, Reg. No. 1936.

Diagnostic features : D, XII, 18; A. II, 20; P. 14; V. I, 3. Depth 4.5-4.6, head 4.6-4.75 in standard length; no crest on head in both sexes; nasal, supra-orbital cirrus and nuchal cirrus present; no notch

in dorsal fin; last anal ray half bound to caudal peduncle by membrane. Both sexes with numerous pale spots; dark streaks anteriorly, sides of body with faint dusky bands.

Habitat : Found in reef areas.

Distribution : Indo-West Pacific, from east coast of Africa to Tuamotu Island.

Genus *Xiphasia* Swainson, 1839

**Xiphasia setifer* Swainson, 1839

1839. *Xiphasia setifer* Swainson *Nat. Hist. Animal, Fishes*, 2 : 259.

1986. *Xiphasia setifer* : Springer, in Smith & Heemstra; *Smith's Sea Fishes*, p. 755, pl. 115.

Material examined : Hut Bay (Little Andaman), 26.10.1991, 2 exs., 270 mm, Coll : P. T. Rajan, Reg. No. 2920.

Diagnostic features : D. XIII, 108-111; A. II, 112; P. 13; V. I, 3. Body extremely elongate and cell-like, depth about 41.0 standard length ; a huge curved canine in each side at front of lower jaw ; origin of dorsal fin slightly anterior to front edge of eye; dorsal and anal fins confluent with caudal fin; caudal fin rhomboid. Colour light brownish-yellow with 26-27 brown bars extend into dorsal fin; a black spot distally between 5th and 6th dorsal rays and diffuse elongate blotch between 10th and 14th dorsal rays; anal fin light yellow, dusky distally.

Habitat : Found on sandy-coral rubble bottom.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is. to Japan and to New Hebrides.

Family CALLIONYMIDAE

Head and body depressed, tail compressed; no scales on body; spinous and soft dorsal fins separated; ventral fins inserted before pectoral fins, widely separated, the last ray connected by membrane to the skin at the base of pectorals; mouth protractile, small ; jaws with villiform teeth; palate edentate; pre-opercle with a stout spine; opercle and supraopercle spineless.

Key to Genera

- 1a Branchial opening on upper surface of head; preopercular process with a spine at its base; last ray of ventral connected by membrane with base of pectoral*Callionymus*
- 1b Branchial opening lateral, more or less backwards; preopercular process without spine; last ray of ventral not connected by membrane with base of pectoral.....*Eleutherochir*

Genus *Callionymus* Linnaeus, 1758

Callionymus filamentosus Valenciennes, 1837

1837. *Callionymus filamentosus* Valenciennes, in Cuv. & Val., *Hist. Nat. Poiss.*, p. 303.

1986. *Callionymus filamentosus* : Fricke, in Smith & Heemstra, *Smith's Sea Fishes*, p. 771, fig. 239.1.

Material examined : Hut Bay (Little Andaman), 26.10.1991, 6 exs., 58-63 mm, Coll : P. T. Rajan, Reg. No. 1800.

Diagnostic features : D. I + III + 9; A. 9; P. 18-20; V. I, 5. Interorbital space with bony ridge; preopercular process straight with 4-6 barbs along its inner side; lateral line with two ventral branches in postorbital region, lines of opposite sides connected across occiput and dorsal side of caudal peduncle; caudal peduncle rounded, in males central two rays are produced. Body light brown with dark spots on sides; fins spotted with dark brown; a black blotch on 3rd membrane of spinous dorsal; in males, black stripes in spinous dorsal.

Habitat : Found on sandy bottom near reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, Persian Gulf, Andaman Is. to Philippines.

Genus *Eleutherochir* Bleeker, 1879

Eleutherochir opercularis (Cuv. & Val., 1837)

1837. *Callionymus opercularis* Cuvier & Valenciennes, *Hist. Nat. Poiss.*, 12 : 305.

1990. *Eleutherochir operculari* : Kamala Devi & Rajan, *J. Andaman Sci. Assoc.*, 6(1 & 2) : 193.

Material examined : Little Andaman, 6.4.1989, 4 exs., 94 mm, Coll : G. C. Rao & party, Reg. No. 1411.

Diagnostic features : D. IV, 9; A. 9; P. 22-24; V. I, 5. Head and body depressed; head flat above; preopercular process curved, without anterior spine ending in a hooked spine with 3-5 spines along upper boarder; caudal fin truncate. Body dark grey, belly white; nape and back with black spots; first dorsal black; rayed dorsal with black spots; anal and caudal fins dusky; ventrals black.

Habitat : Found in muddy area under coral rubble.

Distribution : Indian Ocean, from Andaman Is. to Philippines.

Family ELEOTRIDAE

Small to moderate fishes; teeth in jaws small and conical in several rows; no lateral line; canals and pores present on head; branchiostegal rays 6; ventral fins widely separated; second dorsal short based, much less than caudal peduncle length; anal fin origin behind dorsal origin; scales ctenoid or cycloid; body and most part of head region scaled.

Key to Genera

- 1a Angle of preopercle with one curved spine *Eleotris*
- 1b Angle of preopercle without spines 2

- 2a Vomer toothed; base of caudal fin with ocellus; head scaled***Bostrichthys***
- 2b Vomer edentate; no ocellus at base of caudal fin; head scaled or scaleless 3
- 3a Bony ridge above eye; head highly depressed***Butis***
- 3b No bony ridge above eye; head compressed or depressed 4
- 4a Ventral fins long and narrow, its rays fringed***Eviota***
- 4b Ventral fins normal 5
- 5a Lateral line scale series below 50; head scaled 6
- 5b Lateral line scale series 70-130; head naked***Eleotriodes***
- 6a Sensory canal pores on snout, inter-orbital and posterior margin of preoperculum; maxilla extends to posterior part of eye***Ophiocara***
- 6b Sensory canal pores only on posterior margin of preoperculum; maxilla extends to below anterior margin of eye***Ophieleotris***

Genus ***Butis*** Bleeker, 1856

Butis butis (Ham.-Buch., 1822)

(Fig. 220)

1822. *Cheilodipterus butis* Hamilton-Buchanan, *Fishes of Ganges.*, p. 57, 367.

1986. *Butis butis* : Hoese, in Smith & Heemstra, *Smith's Sea Fishes.*, p. 808, fig. 241.1.

Material examined : Port Mout (South Andaman), 29.9.1990, 1 ex., 123 mm, Coll : Kamla Devi, Reg. No. 1790; Diglipur (North Andaman), 20.5.1989, 6 exs., 86-166 mm, Coll : H. S. Mehta & party, Reg. No. 1997.

Diagnostic features : D. VI + I, 8; A. I, 8; P. 18-20; V. I, 5; LS. 28-30. Depth 5.4-5.9 in standard length; head depressed; maxilla reaches below front edge of eye; predorsal scales 22-24. Body dark with several longitudinal lines; caudal fin dark, upper margin light; base of pectoral with black spot.

Habitat : Found in back water and creeks.

Distribution : Indo-West Pacific, from east coast of Africa to Sri Lanka, Andaman Is. to Australia.

Genus ***Bostrichthys*** Dumeril, 1801

Bostrichthys sinensis (Lacepede, 1802)

1802. *Bostrychus sinensis* Lacepede, *Hist. Nat. Poiss.*, 5 : 183.

1953. *Bostrichthys sinensis* : Koumans, *Fishes of Indo-Australian Archipelago*, 10 : 286.

Material examined : Shoal Bay (South Andaman), 27.6.1989, 1 ex., 123 mm, Coll : H. S. Mehta & party, Reg. No. 1580.

Diagnostic features : D. VI + I, 9; A. I, 8; P. 16; V. I, 5; LS. 96. Depth 6.1, head 3.65 in standard length; snout pointed, lower jaw slightly prominent; scales very small; head with scales. Body green above, light yellow ventrally; sides of body with oblong spots and violet streaks; dorsal and anal fins with streaks; base of caudal fin with orange ocellus bordered by black; pectoral, ventral and caudal fins with dark streaks.

Habitat : Found in creeks and backwater.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. Sri Lanka to Ryukyu Is. and southwards Fiji, Samoa and New Guinea.

Genus *Eleotris* Schneider, 1801

Eleotris fusca (Schneider, 1801)

1801. *Poecilia fusca* Scheneider, in Bloch & Schneider, *Syst. Ichth.*, p. 453.

1986. *Eleotris fusca* : Hoese, in Smith & Heemstra, *Smith's Sea Fishes*, p. 809, fig. 241.4.

Material examined : Chidiyatapu (South Andaman), 20.11.1987, 1 ex., 93 mm, Coll : Kamla Devi, Reg. No. 1446; Wrightmyo (South Andaman), 8.4.1989, 6 exs., 103-112 mm, Coll : H. S. Mehta & party, Reg. No. 1543.

Diagnostic features : D. VI + I, 8; A. I, 8; P. 18; V. I, 5; LS. 62-64. Depth 4.2-4.6 head 4.1-4.2 in standard length. Maxilla reaches to middle of eye; cheek scaled below eye; 8-11 transverse papillae rows along lower margin of preopercle; caudal fin rounded. Head, body and fins dark brown; numerous dark horizontal lines on body.

Habitat : Found in creeks and back waters.

Distribution : Indo-West Pacific, from east coast of Africa to Ryukyu Islands.

Genus *Eleotriodes* Bleeker

Eleotriodes sexguttatus (Valenciennes, 1837)

1837. *Eleotris sexguttatus* Valenciennes, in Cuv. & Val., *Hist. Nat. Poiss.*, p. 12.

1994. *Eleotriodes sexguttatus* : Rao *et al*, *J. Andaman Sci. Assoc.*, 10 (1 & 2) : 30.

Material examined : Havelock Is. (Ritchie's Archipelago), 8.10.1991, 1 ex., 98 mm, Coll : P. T. Rajan, Reg. No. 1889; Chidiyatapu (South Andaman), 19.8.1993, 1 ex., 85 mm, Coll : D. V. Rao & party, Reg. No. 2408.

Diagnostic features : D. VI + I, 12; A. I, 12; P. 20; V. I, 5; LS. 88-89. Supra-opercular groove distinct; head and median parts of nape naked; first 2-4 dorsal spines elongated; caudal fin obtuse.

Body yellowish-white, lighter below; 7-9 bluish spots on cheek, opercle and on base of pectoral; all fins yellow; first dorsal fin with small violet spots, tip of third spine black; inner side of mouth black.

Habitat : Found around coral rubble areas.

Distribution : Indo-West Pacific, from Red Sea, coasts of India, Andaman Is., Sri Lanka, Indonesia to Samoan Islands.

Genus *Eviota* Jenkins, 1902

Eviota distigma Jordan & Seale, 1906

1906. *Eviota distigma* Jordan & Seale *Bull. U. S. Bur Fish.*, 25 : 389.

1980. *Eviota distigma* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 598, fig. 509.

Material examined : Chidiyatapu (South Andaman), 31.7.1992, 1 ex., 65 mm, Coll. D. V. Rao & party, Reg. No. 2032.

Diagnostic features : D. VI + I, 9; A. I, 8; P. 16; V. I, 4; LS. 24. Maxillary reaching to below middle of eye; upper 8 rays of pectoral simple. Body yellowish-white; two dark spots behind eye and less distinct spots on nape; a dark streak from corner of mouth to eye; 8 dark blotches on side of body, extending upward as transverse bars; a dark blotch on side of caudal peduncle posteriorly; base of pectoral with two dark blotches.

Habitat : Found on rocky shores.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is., Indonesia to Japan and Samoa Islands.

Genus *Ophieleotris* Aurich, 1938

Ophieleotris aporos (Bleeker, 1854)

1854. *Eleotris aporos* Bleeker, *Nat. Tijds. Ned. Indie*. 6 : 59.

1991. *Ophieleotris aporos* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 979.

Material examined : Bidnabad (South Andaman), 23.10.1989, 1 ex., 165 mm, Coll : Kamla Devi, Reg. No. 2709; Wandoor (South Andaman), 11.8.1978, 1 ex., 162 mm, Coll : M. K. Dev Roy & party, Reg. No. 1812.

Diagnostic features : D. VI + I, 9; A. I, 9; P. 14; V. I, 5; LS. 30-32. Body elongate and slightly compressed; anterior body scales cycloid, posterior body scales ctenoid; head scaled; predorsal scales 14-16. Body dark brown, pale ventrally; two dark lines from eye to lower part of opercle; a dark longitudinal line on opercle; a dark line at pectoral base ending with a transverse oblong patch at base of rays; caudal fin with elongated spots.

Habitat : Found in creeks and freshwater streams.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. to Philippines and Australia to Fiji.

Genus *Ophiocara* Gill, 1863*Ophiocara porocephala* (Valenciennes, 1837)

1837. *Eleotris porocephala* Valenciennes, in Cuv. & Val. *Hist. Nat. Poiss.*, 12 : 237.

1986. *Ophiocara porocephala* : Hoese, in Smith & Heemstra, *Smiths' Sea Fishes*, p. 810, pl. 127.

Material examined : Shoal Bay (South Andaman), 25.4.1991, 1 ex., 168 mm, Coll : Kamla Devi, Reg. No. 1665; Bambooflat (South Andaman), 5.12.1992, 1 ex., 116 mm, Coll : P. T. Rajan, Reg. No. 2142; Little Andaman, 17.9.1990, 1 ex., 124 mm, Coll : K. V. Raman & party, Reg. No. 2337.

Diagnostic features : D. VI + I, 9; A. I, 9; P. 12; V. I, 5; LS. 25. Width of head equal to head depth; top of tongue with shallow notch; head scaled; predorsal scales 18-24. Head and body dark; second dorsal and caudal fins spotted.

Habitat : Found in creeks and freshwater bodies.

Distribution : Indo-West Pacific, from east coast of Africa to Australia and South Pacific.

Family GOBIIDAE

Small fishes; body scaled or naked; head generally with mucus canals and open pores; barbels on head present or absent; usually two dorsal fins, some with single dorsal fin; 1st dorsal spines flexible; ventrals separate, partly connected or united to form a disc; membrane connecting two ventral spines or absent; small and conical teeth in one to several rows in jaws; brachistegal rays free.

Key to Genera

- 1a Anal and dorsal fins confluent with caudal; anal rays 34-50 or above ***Taenioides***
- 1b Anal and dorsal fins separate from caudal; anal rays 8-35 2
- 2a Body naked or few scales on caudal peduncle ***Gobiodon***
- 2b Body completely scaled 3
- 3a Barbels present on ventral surface of head 4
- 3b No barbels on head 6
- 4a Two barbels on chin; head naked ***Illana***
- 4b More than two barbels on chin; head naked or scaled 5
- 5a Head depressed; horizontal fleshy fold on mid cheek; cheek and opercle naked ***Gobiopsis***
- 5b Head rounded; no fleshy folds on mid-cheek; cheek and opercle scaled ***Parachaeturichthys***
- 6a Eyes protruding; pectoral base elongated; dorsal spines 7-16 ***Periophthalmus***

6b	Eyes not protruding; pectoral base short; dorsal spines 5-6	7
7a	Dorsal fin spines 5; 2nd dorsal and anal fins connected by membrane to caudal or not	8
7b	Dorsal fin spines 6; 2nd dorsal and anal fins not connected by membrane to caudal	9
8a	Second dorsal and anal fins connected by membrane to caudal; fleshy mounds on lower jaw; upper jaw with 19-37 caninoid teeth; lower jaw with 17-47 teeth.....	<i>Scartelaos</i>
8b	Second dorsal and anal fins not connected by membrane to caudal; no fleshy mounds on lower jaw; upper jaw with 31-79 caninoid teeth; lower jaw with 30-80 teeth	<i>Boleophthalmus</i>
9a	First spine of 1st and 2nd dorsal fin stiff and thickened; preopercle with 1-3 flattened spines	<i>Oplopomus</i>
9b	All dorsal spines flexible and thin; preopercle without spines or with 1-9 spines	10
10a	Preopercle with 1-9 spines	<i>Asterropteryx</i>
10b	No Preopercle spines	11
11a	Cheek with prominent vertical flaps	<i>Callogobius</i>
11b	Cheek without raised flaps	12
12a	Shoulder girdle with 1-3 finger like flaps	13
12b	Shoulder girdle smooth or with minute bumps.....	14
13a	Head broader than deep; upper lip thick; tongue tip notched or bilobed; predorsal scales more than 18; no transverse bands on body	<i>Awaous</i>
13b	Head narrower than deep; upper lip normal; tongue tip truncate; predorsal scales 18 or less; body with transverse bands	<i>Stenogobius'</i>
14a	Cheek and opercle with scales or opercle scaled and cheek naked	15
14b	Cheek and opercle naked	19
15a	Cheek naked; opercle scaled	16
15b	Cheek and opercle scaled	17
16a	Second dorsal with 7-8 rays; anal rays 6-8; predorsal scales 8-9	<i>Stigmatogobius</i>
16b	Second dorsal with 13-14 rays; anal rays 14; predorsal scales 28-30	<i>Amblygobius</i>
17a	Lateral scale series 24-28; predorsal scales 8-9; isthmus narrow	<i>Gnatholepis</i>
17b	Lateral scale series 26-36; predorsal scales 10-35 or above; isthmus broad	18
18a	Mouth oblique; predorsal scales 20-45	<i>Acentrogobius</i>

- 18b Mouth inferior; predorsal scales 10-12 ***Exyrias***
- 19a Ventral thick with fleshy lobes at tips of spines; upper pectoral rays free ***Bathygobius***
- 19b Ventral thin without fleshy lobes at tips of spines; upper pectoral rays not free 20
- 20a Head pores absent; size not greater than 50 mm ***Priolepis***
- 20b Head pores present 21
- 21a Lower jaw curved upward at tip; caudal fin longer than head length ***Oxyurichthys***
- 21b Lower jaw normal; caudal fin shorter than head length 22
- 22a Gill opening extending to below end of preoperculum 23
- 22b Gill opening extending to pectoral base or slightly below 24
- 23a Tongue tip bilobed; predorsal scaled, reached to above opercle; head compressed
..... ***Glossogobius***
- 23b Tongue tip truncate; predorsal naked; head depressed ***Mahidolia***
- 24a Mouth small, horizontal; lateral scales series 60-70; predorsal scales 15-20 ***Sicyopterus***
- 24b Mouth moderate, oblique or horizontal; lateral scale series 22-25; predorsal scales 2-9
..... 25
- 25a Mouth horizontal; predorsal scales 6-9; mid-side of body with round spots ***Istigobius***
- 25b Mouth oblique; predorsal scales 2-3; midside of body and caudal peduncle with dark spots
larger than eye ***Yongeichthys***

Genus *Acentrogobius* Bleeker, 1874

Key to species

- 1a Lateral line scales 26-28; dorsal rays 8; predorsal scales 12 ***A. reichei***
- 1b Lateral line scales 30-36; dorsal rays 9-11; predorsal scales 15-30 2
- 2a Lateral transverse scales rows 12; predorsal scales 18; cheek and opercle naked
..... ***A. bontii***
- 2b Lateral transverse scale row 10; predorsal scales 30; cheek and opercle scales in upper part
..... ***A. viridipunctatus***

***Acentrogobius bontii* (Bleeker, 1849)**

(fig. 221)

1849. *Gobius bontii* Bleeker, *Verh. Bat. Gen.*, 22 : 27.

1953. *Acentrogobius bontii* : Koumans, *Fishes of Indo-Australian Archipelago*, 10 : 54, Fig. 14.

Material examined : Panighat (South Andaman), 22.7.1988, 2 exs., 129 mm, Coll : H. S. Mehta & party, Reg. No. 1378.

Diagnostic features : D. VI + I, 10; A. I, 8; P. 18; V. I, 5; Ls. 37. Depth 4.6, head 4.0 in standard length; two curved canines in lower jaw; three longitudinal mucus canals on cheek; head naked, scales beginning from above the opercle. Body reddishgreen above, lighter below; 5-6 dark spots laterally on posterior part of body; dorsal with dark spots on base; margin of anal fin dark.

Habitat : Found in creeks and intertidal areas.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. to Philippines.

***Acentrogobius reichei* (Bleeker, 1843)**

1843. *Gobius reichei* Bleeker *Nat. Tijds. Ned. Indie*, 5 : 509.

1953. *Acentrogobius reichei* : Koumans, *Fishes of Indo-Australian Archipelago*, 10 : 77

Material examined : Panighat (South Andaman), 27.4.1991, 1 ex., 83 mm, Coll : P. T. Rajan, Reg. No. 1722.

Diagnostic features : D. VI + I, 8; A. I, 8; P. 16; V. I, 5; Ls. 28. Depth 5.1, head 3.4 in standard length; maxillary extends to below anterior margin of eye; scales beginning on head from behind eyes; cheek and opercle naked. Body green above, lighter below; cheek and opercle with violet streaks; a violet stripe from eye, over lip to chin; dusky spots laterally on back; 2nd dorsal, pectoral and caudal fins spotted; dark stripe on lower base of pectoral.

Habitat : Found in creeks.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. to Philippines and New Hebrides.

***Acentrogobius viridipunctatus* (Valenciennes, 1837)**

(Fig. 222)

1837. *Gobius viridipunctatus* Valenciennes, *Hist. Nat. Poiss.*, 12 : 62.

1991. *Acentrogobius viridipunctatus* : Talwar & Jhingran *Inland Fishes of India and Adjacent Countries*, 2 : 926.

Material examined : Kadkachang (South Andaman), 29.7.1970, 1 ex. 78 mm, Coll : M. K. Dev Roy, Reg. No. 1371; Kalighat (North Andaman), 26.11.1987, 3 exs., 76-83 mm, Coll : H. S. Mehta & party, Reg. No. 1381; Chidiyatapu (South Andaman), 10.9.1987, 10 exs., 105 mm, Coll : Kamla Devi, Reg. No. 1394; Bambooflat (South Andaman), 5.12.1992, 2 exs., 91 mm, Coll : P. T. Rajan, Reg. No. 2143.

Diagnostic features : D. VI + I, 10; A. I, 9; P. 18-19; V. I, 5; Ls. 35-36. Depth 4.8-5.0, head 3.6-4.0 in standard length; scales beginning on head from behind eyes; 30 predorsal scales; each side of

lower jaw with 3-4 canines. Body dusky green above, lighter below; lateral side of body with dark spots, half way the flank with longitudinal row of large dark spots; a black stripe on 1st dorsal and two dark bands on 2nd dorsal; caudal fin with black spots.

Habitat : Found in creeks and shallow coastal waters.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is., Sri Lanka to Japan.

Genus *Amblygobius* Bleeker, 1874

Amblygobius albimaculatus (Ruppell, 1828)

1828. *Gobius albimaculatus* Lacepede, *Atlas. Reise. Afrk. Fische.*, p. 135.

1986. *Amblygobius albimaculatus* : Hoese, in Smith & Heemstra, *Smith's Sea Fishes.*, p. 778.

Material examined : Chidiyatapu (South Andaman), 15.4.1987, 2. exs., 68 mm, Coll : Kamla Devi, Reg. No. 1369.

Diagnostic features : D. VI + I, 14-15; A. I, 13; P. 20-21; V. I, 5; Ls. 48-51. Depth 3.8-4.0, head 3.9-4.1 in standard length; 25-27 predorsal scale rows; middle spine of 1st dorsal distinctly long; cheek without scales; body scales ctenoid. Body light green above, yellowish below; head and nape with violet edged yellow spots; 5 transverse dark bands on sides of body; a brown spot above pectoral fin base; caudal fin with a black spot on upper base and small black spot at upper and lower sides.

Habitat : Found on coral reef areas in shallow water.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, Lakshadweep, Andaman Is. to Japan and Australia to Society Islands.

Genus *Asterropteryx* Ruppell, 1830

Asterropteryx semipunctatus Ruppell, 1830

1830. *Asterropteryx semipunctatus* Ruppell, *Atlas. Reise. Afrk. Fische.*, pl. 34, fig. 4.

1993. *Asterropteryx semipunctatus* : Rao *et al.* *J. Andaman Sci. Assoc.*, 9 (1 & 2) : 54.

Material examined : Chidiyatapu (South Andaman), 19.8.1993, 1 ex., 39 mm, Coll : D. V. Rao & party, Reg. No. 2406.

Diagnostic features : D. VI + I, 10; A. I, 9; P. 17; V. I, 5; Ls. 24. Depth 3.4, head 3.0 in standard length; snout blunt; preopercle with short spines; cheek and operculum with large scales; ventral fins separate; 3rd dorsal spine filamentous; 7 predorsal scales; caudal fin rounded. Body brown with dark spots on mid-side; small dark saddles dorsally; anal fin with blue dots.

Habitat : Found on sandy rubble bottom.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, coasts of India, Andaman Is. to Ryukyu Is. and Australia to Hawaiian Islands.

Genus *Awaous* Valenciennes, 1837

Awaous stamineus (Valenciennes, 1842)

1842. *Gobius stamineus* Valenciennes, *Zool. Ver. Bonite.*, p. 179.

1953. *Awaous stamineus* : Koumans, *Fishes of Indo-Australian Archipelago*, 10 : 153.

Material examined : Kalpong River (North Andaman), 22.5.1989, 2 exs., 32 mm, Coll : H. S. Mehta & party, Reg. No. 1404; Chidiyatapu (South Andaman), 30.8.1989, 2 exs., 43 mm, Coll : H. S. Mehta & party, Reg. No. 1416; Bidnabad (South Andaman), 22.10.1989, 1 ex., 56 mm, Coll : P. T. Rajan, Reg. No. 1419.

Diagnostic features : D. VI + I, 10; A. I, 10; P. 16-18; V. I, 5; Ls. 53-56. Head and snout obtusely convex; small falps on shoulder girdles; lips thick; tongue bilobed; caudal fin obtuse; 18-22 predorsal scales. Body greenish, yellowish ventrally; two longitudinal black streaks from eye to maxillary; head and body with black spots; dorsal fins with black streaks; outer part of pectoral base and middle base of caudal fin with black spots.

Habitat : Found in ponds and rivers.

Distribution : From India, Andaman Is. to Philippines.

Genus *Bathygobius* Bleeker, 1878

Bathygobius fuscus (Ruppell, 1830)

(Fig. 223)

1830. *Gobius fuscus* Ruppell, *Atl. Reise. Afrik. Fische.*, p. 137.

1986. *Bathygobius fuscus* : Hoese, in Smith & Heemstra, *Smith's Sea Fishes.*, p. 781, pl. 122.

Material examined : Chidiyatapu (South Andaman), 21.3.1988, 4 exs., 52-66 mm, Coll : H. S. Mehta & party, Reg. No. 1379; Kalighat (Nort Andaman), 26.9.1987, 4 exs., 62-84 mm, Coll : H. S. Mehta & party, Reg. No. 1380.

Diagnostic features : D. VI + I, 9; P. I, 8; P. 17-18; V. I, 5; Ls. 30-33. Depth 4.5-5.0, head 3.2-3.3 in standard length; head rounded; lips thick; teeth in several rows in jaws; upper three pectoral rays free from membrane; pre-pelvic area scaled; 14-16 predorsal scales. Body dusky with scattered spots; sides of body with faint blotches, extends ventrally; fins dark with dusky markings.

Habitat : Found in creeks.

Distribution : Indo-Pacific, from east coast of Africa to Japan and Australia.

Genus *Boleophthalmus* Valenciennes, 1837

Boleophthalmus boddart (Pallas, 1770)

(Fig. 224)

1770. *Gobius boddart* Pallas, *Spicilegia Zoologica*, 1 : 11, pl. 2.

1989. *Boleophthalmus boddart* : Murdy, *Rec. Australian Mus.*, suppl. 11, p. 14; fig. 9 & 10.

Material examined : Wrightmyo (South Andaman), 20.7.1978, 1 ex., 52 mm, Coll : M. K. Dev Roy, Reg. No. 1333; Chataham Is. (North Andaman), 14.9.1987, 1 ex., 63 mm, Coll : H. S. Mehta & party, Reg. No. 1365; Shoal Bay (South Andaman), 2.7.1988, 3 exs., 82-92 mm, Coll : H. S. Mehta & party, Reg. No. 1375.

Diagnostic features : D. VI + I, 24-25; A. I, 24; P. 18; V. I, 5; Ls. 64-69. Dorsal and anal fins bases long; pelvic frenum well developed; caudal fin lanceolate; teeth in single row on jaws. Body greybrown; greenish-white ventrally; head and trunk with small white spots; 6-7 dusky bars inclined anteriorly from dorsum; brown spots on head and nape; dorsal fin bluish brown with small white spots; pectoral fin brown with dark margin.

Habitat : Found in creeks and rocky shores.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. to Indonesia and Vietnam.

Genus *Callogobius* Bleeker, 1874

Callogobius hasselti (Bleeker, 1851)

1851. *Eleotris hasselti* Bleeker, *Nat. Tijd. Ned. Indie.*, 1 : 253.

1984. *Callogobius hasselti* : Akahito, in Masuda *et al*, *Fishes, of Japanese Archipelago*, p. 264, pl. 246A.

Material examined : Little Andaman, 22.9.1990, 2 exs., 60 mm, Coll : K. V. Raman & Party, Reg. No. 2061.

Diagnostic features : D. VI + I, 10; A. I, 8; P. 18; V. I, 5; Ls. 23. Depth 5.9, head 7.2 in standard length; lower jaw prominent; head with papillae; snout, cheek and opercle with folds; connecting membrane of ventral fin notched; caudal fin lanceolate, longer than head. Body reddish-green above, lighter below with three indistinct transverse bands; fins yellow; all fins except caudal with transverse stripes; small black spot on upper part of caudal fin.

Habitat : Found on coral reefs in shallow water.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. to Japan.

Genus *Exyrias* Jordan & Seale, 1906

Exyrias puntang (Bleeker, 1851)

1851. *Gobius puntang* Bleeker, *Nat. Tijd. Ned. Indie.*, 2 : 486.

1985. *Exyrias puntang* : Murdy, *Indo-Pacific Fishes*, No. 10, p. 10, fig. 1 & 2, p. 2B.

Material examined : Bidnabad (South Andaman), 30.8.1989, 3 exs., 62 mm, Coll : H. S. Mehta & party, Reg. No. 1412; Little Andaman, 19.9.1990, 2 exs., 132 mm, Coll : K. V. Raman & party, reg. No. 1661.

Diagnostic features : D. VI + I, 10; A. I, 9-10; P. 17-18; V. I, 5; Ls. 30-32. Mouth inferior; small teeth in 4-5 rows in each jaw; predorsal scales 10-12. Body dark brown, lighter ventrally; small red spots on anterior part of dorsal body contour and small silvery white spots on posterior part of body; dorsal fin with alternating purple and yellow stripes; anal fin yellow, blackish medially with two red stripes; dusky spot on pectoral fin; ventral fin blackish

Habitat : Found in creeks.

Distribution : Indo-West Pacific, from Andaman Is. to Ryukyu Is. and New Guinea to New Caledonia.

Genus *Glossogobius* Gill, 1862

Key to Species

- 1a Branchiostegal membranes form a free fold across isthmus; iris with a lappet; 1st dorsal fin with two ocelli *G. biocellatus*
- 1b Branchiostegal membranes attached to sides of isthmus; iris without a lappet; 1st dorsal fin with one or without ocellus *G. giuris*

Glossogobius biocellatus (Valenciennes, 1837)

1837. *Gobius biocellatus* Valenciennes, *Hist. Nat Poiss.*, 12 : 73.

1986. *Glossogobius biocellatus* : Hoese, in Smith & Hemmstra, *Smith's Sea Fishes*, p. 789.

Material examined : Shoal Bay (South Andaman), 27.6.1989, 4 exs., 50-68 mm, Coll : H. S. Mehta & party, Reg. No. 2045.

Diagnostic features : D. VI + I, 9; A. I, 8; P. 18; V. I, 5; Ls. 32. Snout elongate, tongue bilobed; dorsal fins separate; caudal fin rounded; predorsal scales 14-16. Body brownish-black with black spots in longitudinal rows; 2-3 saddles on back and sides; 1st dorsal fin with two black ocelli; ventral fin with dark cross bands.

Habitat : Found in creeks.

Distribution : Indo-Pacific, from east coast of Africa, coasts of India, Andaman Is., Sri Lanka to Fiji and Samoa.

Glossogobius giuris (Ham. & Buch., 1822)

1822. *Gobius giuris* Hamilton & Buchanan, *Fishes of Ganges*, p. 50, pl. 33.

1986. *Glossogobius giuris* : Hoese, in Smith & Heemstra, *Smith's Sea Fishes*, p. 790, fig. 240.44.

Material examined : Shoal Bay (South Andaman), 2.7.1988, 2 exs., 127 mm, Coll : H. S. Mehta & party, Reg. No. 1377; Havelock Is. (Ritchie's Archipelago), 24.11.1987, 8 exs., 106-149 mm, Coll : B. Mitra & party, Reg. No. 1445; Portmout (South Andaman), 26.4.1991, 1 ex., 98 mm, Coll : Kamla Devi, Reg. No. 1662.

Diagnostic features : D. VI + I, 9; A. I, 8; P. 19-20; V. I, 5; Ls. 30-32. Snout elongate, lips thick; dorsal fins close together; predorsal scales 22-26. Body pale with small spots forming longitudinal stripes; 1st dorsal fin with one black spot; rays of dorsal, pectoral and caudal fins with black spots.

Habitat : Found in creeks and freshwater pools.

Distribution : Indo-West Pacific, from east coast of Africa, coasts of India, Andaman Is. to Japan and Australia.

Genus *Gnatholepis* Bleeker, 1874

Gnatholepis baliurus (Cuv. & Val., 1837)

1837. *Gobius baliurus* Cuvier & Valenciennes, *Hist. Nat. Poiss.*, 12 : 61.

1993. *Gnatholepis baliurus* : Kamla *et al*, *Environment & Ecology*, 11(4) : 813.

Material examined : Panighat (South Andaman), 6.7.1992, 1 ex., 76 mm, Coll : P. T. Rajan, Reg. No. 2704.

Diagnostic features : D. VI + I, 10; A. I, 9; P. 17; V. I, 5; Ls. 28. Depth 5.3, head 3.5 in standard length; mucous canals radiates from eye and two rows on cheek; interorbital and sub-orbital groove with open pore; predorsal scales 8. Body reddish-green above, greenish below; 3 dark spots laterally on body; fins yellowish; dark brown spot at base of caudal fin.

Habitat : Found around coral reefs.

Distribution : Indian Ocean, from Andaman Is. and Java.

Genus *Gobiodon* Bleeker, 1856

Gobiodon citrinus (Ruppell, 1830)

1830. *Gobius citrinus* Ruppell, *Neue. Wirbelt. Fische.*, p. 139, pl. 32.

1986. *Gobiodon citrinus* : Hoese, in Smith & Heemstra, *Smith's Sea Fishes*, p. 791, pl. 123.

Material examined : Rutland Is. (South Andaman), 16.10.1993, 1 ex., 51 mm, Coll : D. V. Rao & party, Reg. No. 2577.

Diagnostic features : D. VI + I, 10; A. I, 8-9; P. 18-19; V. I, 5. Depth 2.2-2.6, head 3.2-3.34 in standard length; no scales on body; ventral fin small; lips thin; front of 1st dorsal fin elevated. Body bright yellow with two vertical blue lines below eye; one blue line from nape to edge of opercle and small another blue line across pectoral fin base; a small black spot above pectoral base.

Habitat : Found among live *Acropora* coral branches.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is. to Japan and Australia to Tonga Island.

Genus *Gobiopsis* Steindachner, 1860

Key to Species

- 1a Anterior and posterior temporal pores present; pectoral fin rays 20 or above; nasal pore anterior to posterior nostril ***G. woodsi***
- 1b Temporal pores absent; pectoral fin rays below 20; nasal pore behind posterior nostril ***G. quinquecincta***

***Gobiopsis quinquecincta* (Smith, 1931)**

1931. *Pipidonia quinquecincta* Smith, *Proc. U. S. Nat. Mus.*, p. 39, fig. 19.

1978. *Gobiopsis quinquecincta* : Lachner & Mc Kinney, *Smithsonian Contributions to Zoology*, No. 262, p. 26, pl. 10.

Material examined : Rutland Is. (South Andaman), 16.10.1993, 2 exs., 30 & 32 mm, Coll : D. V. Rao & party, Reg. No. 2575; Outram Is. (Ritchie's Archipelago), 1.3.1993, 3 exs., 26-36 mm, Coll : D. V. Rao & party, Reg. No. 2597; North Reef Is. (North Andaman), 11.3.1993, 1 ex., 25 mm, Coll : G. C. Rao & party, Reg. No. 2271.

Diagnostic features : D. V + I, 10; A. I, 8; P. 15; V. I, 5; Ls. 32-34. Depth 6.25-6.5, head 3.5-3.7 in standard length; post mandibular and posterior gular barbels present; preopercular pores 2; posterior interorbital, nasal and anterior temporal pores present; 4-5 barbels on the anterior cheek tuft. Body white, with a dark broad head band behind eyes descends laterally to the lower preopercle; 4 wide saddles on trunk slightly descending to lower sides; a dark bar across base of caudal fin.

Habitat : Found on sandy bottom near coral rubble.

Distribution : Indo-West Pacific, from coasts of India, Andaman & Nicobar Is. to Okinawa.

***Gobiopsis woodsi* Lachner & Mc. Kinney, 1978**

1978. *Gobiopsis woodsi* Lachner & Mc Kinney, *Smithsonian Contributions to Zoology*, No. 262, p. 21, fig. 7, pl. 7B & 8B

1993. *Gobiopsis woodsi* : Kamla *et al*, *Environment & Ecology*, 11(4) : 813.

Material examined : South Bay (Little Andaman), 17.9.1990, 1 ex., 49 mm, Coll : K. V. Raman & party, Reg. No. 2706.

Diagnostic features : D. VI + I, 10; A. I, 9; P. 20; V. I, 5; Ls. 36. Four mandibular and two chin barbels on each side; anterior cheek tuft with 5 barbels on each side; predorsal scales 11. Body mottled with white and dark brown markings dorsally and laterally; ventral side of head and belly light; base of caudal fin with irregular spot; base of pectoral with large whitish area; soft dorsal with 5 brownish cross bars; anal fin mottled light and brown.

Habitat : Found on sandy bottom near coral rubble.

Distribution : Indian Ocean, from Gulf of Mannar, Andaman Is., Thailand and Singapore.

Genus *Illana* Smith & Seale, 1906

Illana bicirrhosus (Weber, 1894)

1894. *Gobius bicirrhosus* Weber, *Zool. Ergebnisse*, 3 : 412.

1953. *Illana bicirrhosus* : Koumans, *Fishes of Indo-Australian Archipelago*, 10 : 128, fig. 29.

Material examined : Kadkachang (South Andaman), 7.4.1989, 2 exs., 74 mm, Coll : H. S. Mehta & party, Reg. No. 1404.

Diagnostic features : D. VI + I, 9; A. I, 8; P. 18; V. I, 5; Ls. 31. Body slightly compressed; head naked; lower jaw prominent; no canines; a barbel present on each side of chin; caudal fin oblong. Body brownish with row of five dark blotches along sides; dorsal with dark spots; caudal fin with light vertical brown bands.

Habitat : Found in streams.

Distribution : India, Andaman Is. to Philippines.

Genus *Istigobius* Whitely, 1932

Key to Species

- 1a No recurved canines at angle of lower jaw; 3-4 upper pectoral rays free *I. ornatus*
- 1b Recurved canines at angle of lower jaw; upper pectoral rays entire *I. goldmanni*

Istigobius goldmanni Bleeker, 1852

1852. *Istigobius goldmanni* Bleeker *Nat. Tijds. Ned. Indie*, 3 : 167.

1993. *Istigobius goldmanni* : Rao *et al*, *J. Andaman Sci. Assoc.*, 9 (1 & 2) : 55

Material examined : Chidiyatapu (South Andaman), 19.8.1993, 1 ex., 55 mm, Coll : D. V. Rao & party, Reg. No. 2404.

Diagnostic features : D. VI + I, 10; A. I, 9; P. 17; V. I, 5; Ls. 30. Depth 5.4, head 4.0 in standard length, body anteriorly cylindrical and posteriorly compressed; lips thick; anterior nostrils in a short tube. Body olivaceous, lighter below; numerous black spots on dorsum; dusky bars on abdomen; a prominent black line on cheek; row of blotches basally on 1st dorsal fin membrane; 2nd dorsal with three rows of black spots; a row of black spots on anal fin; caudal fin with black spots; ventral fins dusky.

Habitat : Found around coral reefs in sandy areas.

Distribution : Indo-West Pacific, from Andaman Is., Philippines to Japan and Australia to Fiji.

***Istigobius ornatus* (Ruppell, 1830)**

1830. *Gobius ornatus* Ruppell, *Atlas, Reise. Nord. Afrik. Fische. Rothen Meeres.*, p. 135.

1985. *Istigobius ornatus* : Murdy & Hoese, *Indo-Pacific Fishes*, No. 4, p. 9, pl. 1A & 3C.

Material examined : Chidiyatapu (South Andaman), 10.9.1987, 13 exs., 64-92 mm, Coll : Kamla Devi, Reg. No. 1403; Port Blair (South Andaman). 8.8.1993, 3 exs., 62-71 mm, Coll : D. V. Rao, Reg. No. 2409; Havelock Is. (Ritchie's Archipelago), 8.10.1991, 2 exs., 68 mm, Coll : P. T. Rajan, Reg. No. 1785; Portmout (South Andaman), 29.11.1990, 3 exs., 95-105 mm, Coll : Kamal Devi & party, Reg. No. 1786.

Diagnostic features : D. VI + I, 10; A. I, 9; P. 18-19; V. I, 5; Ls. 29-30. Depth 4.5-6.5, head 3.6-3.7 in standard length; no scales on cheek and operculum; no recurved canines in lower jaw; upper pectoral rays free; predorsal scales 10-11. Body pale greyish with three rows of small white spots; mid side of body with 7-8 rectangular black spots; two thin brown longitudinal lines dorsally on body; 8 large black spots in a horizontal line ventrally; dorsal and anal fins with black spots.

Habitat : Found on coral rubble areas.

Distribution : Indo-West Pacific, from Red Sea, Madagascar to coasts of India, Andaman Is. to Japan and Australia to Solomon.

Genus *Mahidolia* H. Smith, 1932

***Mahidolia mystacina* (Valenciennes, 1837)**

1834. *Gobius mystacina* Valenciennes, *Hist. Nat. Poiss.*, 12 : 124.

1993. *Mahidolia mystacina* : Kamla *et al*, *Environment & Ecology*, 11(4) : 812.

Material examined : Hut Bay (Little Andaman), 23.10.1991, 3 exs., 43-80 mm, Coll : P. T. Rajan, Reg. No. 2693; Panighat (South Andaman), 5.9.1992, 1 ex., 61 mm, Coll : P. T. Rajan, Reg. No. 2694.

Diagnostic features : D. VI + I, 10; A. I, 9; P. 16; V. I, 5; Ls. 39. Depth 4.3, head 3.4 in standard length; maxillary reaching to beyond eye; no anterior interorbital pore; no scales on head; breast scaled; 8 predorsal scales; posterior rays of dorsal and anal prolonged, reaching caudal fin. Body with 6-8 slightly oblique cross bars, head with small blue spots; tip of 1st dorsal black; pectoral fin dark; anal fin margin with pale band.

Habitat : Found on coral rubble areas near reefs.

Distribution : Indo-West Pacific, from east coast of Africa, Andaman Is. to Japan and Australia.

Genus *Oplopomus* Valenciennes, 1837

Key to Species

1a Cheek and opercle naked; 4th & 5th ray of 1st dorsal fin filiform***O. oplopomus***

- 1b Cheek and opercle scaled; 1st dorsal rays not filiform.....*O. caninoides*

***Oplopomus caninoides* (Bleeker, 1852)**

1852. *Gobius caninoides* Bleeker, *Nat. Tijd. Ned. Indie.*, p. 274.

1990. *Oplopomus caninoides* : Mehta & Kamla Devi, *J. Andaman Sci. Assoc.*, 6(1) : 68.

Material examined : Hut Bay (Little Andaman), 5.4.1989, 17 exs., 92-106 mm, Coll : G. C. Rao & party, Reg. No. 1410; 14.9.1990, 8 exs. 70-96 mm, Coll : K. V. Raman & party, Reg. No. 1663; 24.10.1991, 12 exs., 85-102 mm, Coll : P. T. Rajan, Reg. No. 1787.

Diagnostic features : D. VI + I, 10; A. I, 10; P. 17-19; V. I, 5; Ls. 29-30. Depth 4.2-4.7, head 3.8-4.0 in standard length; a canine on each side in lower jaw; cheek and opercle scaled; an open pore behind each eye and interorbital; 1st ray of 1st and 2nd dorsal fins pungent. Body reddish brown with pearl-like spots on lateral sides; dorsal and caudal fins with rows of dark spots.

Habitat : Found in sandy areas and coral rubble.

Distribution : Indo-West Pacific, from Persian Gulf, Andaman Is. to Philippines.

***Oplopomus oplopomus* (Valenciennes, 1837)**

1837. *Gobius oplopomus* Valenciennes *Hist. Nat. Poiss.*, 12 : 66.

1986. *Oplopomus oplopomus* : Hoese, in Smith & Heemstra, *Smith's Sea Fishes*, p. 796, pl. 124.

Material examined : Hut Bay (Little Andaman), 6.4.1988, 5 exs., 72-93 mm, Coll : K. V. Raman & party, Reg. No. 1418; 14.9.1990, 5 exs., 108 mm, Coll : P. T. Rajan, Reg. No. 1664.

Diagnostic features : D. VI + I, 10; A. I, 10; P. 18-19; V. I, 5; Ls. 24-26. Depth 4.2-4.32, head 3.5-3.62 in standard length; preopercle with 2 flattened spines; cheek and opercle naked; 1st ray of 1st dorsal pungent, the 4th and 5th rays longest. Body white with a mid-lateral row of 4-5 brownish blotches and a row of smaller blotches along back; head and body with numerous small pale blue and orange spots; elongate blue streaks on cheek; middle rays of caudal fin with orange streaks.

Habitat : Found in sandy and coral rubble areas.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is. to Philippines and Australia to Tahiti Islands.

Genus *Oxyurichthys* Bleeker, 1860

Key to Species

- 1a Distinct elongate tentacle over eye*O. tentacularis*
 1b No tentacle, but a bump over eye*O. papuensis*

***Oxyurichthys papuensis* (Valenciennes, 1837)**

1837. *Gobius papuensis* Valenciennes, *Hist. Nat. Poiss.*, 12 : 106.

1986. *Oxyurichthys papuensis* : Hoese, in Smith & Heemstra, *Smith's Sea Fishes*, p. 797, pl. 124.

Material examined : Panighat (South Andaman), 9.10.1990, 1 ex., 159 mm, Coll : P. T. Rajan, Reg. No. 1585; Bambooflat (South Andaman), 14.11.1991, 1 ex., 162 mm, Coll : P. T. Rajan, Reg. No. 1714.

Diagnostic features : D. VI + I, 12; A. I, 13; P. 22-23; V. I, 5; Ls. 68-73; maxilla reaching to below middle of eye; breast scaled; pectoral base naked; predorsal scales 18-22; caudal fin lanceolate. Body brown with 7-8 vertical dark brown bars with shiny spots; dorsal and caudal fins reddish with blue streaks; a dark spot on middle of caudal peduncle.

Habitat : Found in shallow coastal waters.

Distribution : Indo-West Pacific, from east coast of Africa, to coasts of India, Andaman Is. to Philippines and New Guinea.

***Oxyurichthys tentacularis* (Valenciennes, 1837)**

1837. *Gobius tentacularis* Valenciennes, *Hist. Nat. Poiss.*, 12 : 128

1991. *Oxyurichthys tentacularis* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 942.

Material examined : Portmout (South Andaman), 27.4.1988, 3 exs., 117-142 mm, Coll : Kamla Devi, Reg. No. 1372; Kadakachang (South Andaman), 30.6.1988, 10 exs., 119-139 mm, Coll : H. S. Mehta & party, Reg. No. 1374.

Diagnostic features : D. VI + I, 12; A. I, 14; P. 18-20; V. I, 5; Ls. 54-62. Median line of head and nape naked; caudal fin long and pointed. Body reddish-green above, paler below; scales of back and sides with red spots; 2nd dorsal with three longitudinal rows of reddish-violet spots; 2nd dorsal with oblong reddish-violet spots; pectoral fins orange; ventral and anal fins violet; caudal fin with oblique reddish streaks.

Habitat : Found in creeks and shallow coastal waters.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. to Philippines and Australia to Fiji.

Genus *Parachaeturichthys* Bleeker, 1874

***Parachaeturichthys polynema* (Bleeker, 1853)**

1994. *Parachaeturichthys polynema* : Rao *et al*, *J. Annaman Sci. Assoc.*, 10 (1 & 2) : 30.

Material examined : Bambooflat (South Andaman), 28.4.1992, 2 exs., 102 mm, Coll : P. T. Rajan, Reg. No. 1870.

Diagnostic features : D. VI + I, 11; A. I, 10; P. 20; V. I, 5; Ls. 29. Opercle and cheek scaled; scales beginning on head between eyes; numerous small barbels on ventral side of head; caudal fin longer than head. Body greenish above, lighter below; upper base of caudal fin with larger black spot surrounded by yellow; all fins dusky.

Habitat : Found on coral rubble in shallow areas.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is. to Japan and Formosa and North Queensland.

Genus *Periophthalmus* Bloch & Schneider, 1801

Key to Species

- 1a Frenum uniting ventral spines prominent or vestigial 2
- 1b No pelvic frenum; dorsal with prominent black stripe infra-marginally*P. argentilineatus*
- 2a Pelvic frenum vestigial; 1st dorsal with 11 or more spines; longitudinal scale series 70 or more*P. kalolo*
- 2b Pelvic frenum prominent; 1st dorsal with 11 or fewer spines; longitudinal scale series 60 or less*P. malaccensis*

Periophthalmus argentilineatus Valenciennes, 1837

1837. *Periophthalmus argentilineatus* Valenciennes *Hist. Nat. Poiss.*

1989. *Periophthalmus argentillneatus* : Murdy *Rec. Australian Mus.*, Suppl. 11, p. 32, pl. 2A.

Material examined : Wandoor (South Andaman), 25.8.1991, 3 exs., 82-91 mm, Coll : D. V. Rao & party, Reg. No. 2031; Chidiyatapu (South Andaman), 2 exs., 120 mm, Coll : D. V. Rao & party., Reg. No. 2199; Outram Is. (Ritchie's Archipelago), 1.3.1993, 1 ex., 115 mm, Coll : D. V. Rao & party, Reg No. 2616.

Diagnostic features : D. XII-XIV, 10-12; A. X, 12; P. 12-14. Depth 6.3-7.21, head 2.6-2.92 in standard length; ventral fins lacking frenum; 1st dorsal fin margin convex; both dorsal fins separated. Body brownish, silvery white ventrally; numerous white spots on head and few on trunk; trunk with narrow silvery bars and 3-4 saddle-like blotches postero-dorsally; 1st dorsal with prominent black inframarginal band and below white spots; middle of 2nd dorsal with wide black spots; caudal fin with brownish red spots.

Habitat : Found on silty-sand areas near dead coral patches.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is. to Ryukyu Is, and Australia to Samoa Islands.

Periophthalmus kalolo Lesson, 1830

1830. *Periophthalmus kalolo* Lesson, *Vog. Coguille. Zool.*, 2 : 146.

1989. *Periophthalmus kalolo* : Murdy *Rec. Australian Mus.*, Suppl. 11, p. 38, pl. 2D.

Material examined : Port Blair (South Andaman), 15.11.1980, 3 exs., 42-61 mm, Coll : M. K. Dev. Roy & party, Reg. No. 1392; Chidiyatapu (South Andaman), 22.12.1987, 7 exs., 62-84 mm, Coll : Kamla Devi, Reg. No. 1366.

Diagnostic features : D. XI-XII, 12; A. I, 12; P. 12-13; V. I, 5; Ls. 72-74. Pelvic frenum vestigial; 1st dorsal fin widely separated from 2nd. Body grey, head with numerous white spots antero-ventrally; trunk with black flecks; faint brown saddles dorsally; margin of spinous dorsal white; prominent black stripe inframarginally, fin with many grey spots.

Habitat : Found on rocky shores.

Distribution : Indo-West Pacific, from east coast of Africa, coasts of India, Andaman Is., Sri Lanka to Philippines and New Guinea to Fiji and Tonga.

***Periophthalmus malaccensis* Eggert, 1935**

1935. *Periophthalmus malaccensis* Eggert *Zool. Jahr. Abt. Syst. Oek. Geo. Tiera*, 67 : 62, fig. 3 & 4.

1993. *Periophthalmus malaccensis* : Kamla *et al*, *Environment & Ecology*, 11(4) : 813.

Material examined : Chidiyatapu (South Andaman), 26.4.1991, 4 exs., 63-126 mm, Coll : Kamla Devi & party, Reg. No. 2705.

Diagnostic features : D. XI + I, 10, A. I, 9; Ls. 58. Depth 5.5-5.6, head 3.7-3.8 in standard length; spinous dorsal triangular, its margin feebly convex, 1st ray prolonged; pectoral fin as long as head; pelvic frenum prominent; ventral fins partially united. Body dark grey above, light below; head with many small white spots; 1st dorsal margin white, fin with white spots; 2nd dorsal with dark brown stripe and few scattered white spots.

Genus *Priolepis* Ehrenberg, 1837

***Priolepis semidoliatus* (Valenciennes, 1837)**

(Fig. 225)

1837. *Gobious semidoliatus* Valenciennes, *Hist. Nat. Poiss*, 12 : 67.

1984. *Priolepis semioliatus* : Akihito, in Masuda *et al*, *Fishes of Japanese Archipelago*, p. 248, pl. 353 E.

Material examined : Chidiyatapu (South Andaman), 31.7.1992, 2 exs., 22 mm, Coll : D. V. Rao, Reg. No. 1963; Outram Is. (Ritchie's Archipelago), 1.3.1993, 3 exs., 23-27 mm, Coll : D. V. Rao & party, Reg. No. 2615; Little Andaman, 18.3.1995, 1 ex., 38 mm, Coll : D. V. Rao, Reg. No. 2893.

Diagnostic features : D. VI + I, 8; A. I, 7; P. 16-17; V. I, 5; Ls. 27. Depth 2.8-3.1, head 2.6-2.91 in standard length; head pores absent; lower jaw prominent; head and anterior part of body upto 1st dorsal fin naked; 2nd and 3rd dorsal rays filiform. Body light reddish-brown with 7-8 pale cross bars edged with dark brown on head and anterior part of body; fins uniform light orangish-yellow.

Habitat : Found under coral stones in reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is. to Okinawa and Australia to Tahiti Island.

Genus *Scarteloas* Swainson, 1839*Scarteloas cantoris* (Day, 1871)

1871. *Apocryptes cantoris* Day *Proc. Sci. Meeting. Zool. Soc., London*. P. 693.

1989. *Scarteloas cantoris* : Murdy, *Rec. Aust. Mus.*, Suppl. 11, p. 50.

Material examined : Chatham Is. (North Andaman), 14.9.1987, 1 ex., 76 mm, Coll : H. S. Mehta & party, Reg. No. 1364.

Diagnostic features : D. V + I, 26; A, I, 24; P. 21; V. I, 5; Ls. 94. Ventral surface of head with fleshy mounds; dorsal fins separated; 2nd dorsal and anal fins connected by membrane to caudal fin; caudal fin lanceolate. Body light brown, small black spots on head extending to pectoral base; anterior part of body with 8 narrow pale vertical bars; 2nd dorsal with 3 horizontal brownish-black lines basally.

Habitat : Found in creeks.

Distribution : Indian Ocean, Known only from Andaman Islands.

Genus *Sicyopterus* Gill, 1860*Sicyopterus microcephalus* (Bleeker, 1854)

1854. *Sicydium microcephalus* Bleeker, *Nat. Tijds. Ned. Indie.*, 7 : 437.

1953. *Sicyopterus microcephalus* : Koumans, *Fishes of Indo-Australian Archipelago*, 10 : 223.

Material examined : Diglipur (North Andaman), 25.8.1989, 5 exs., 82-96 mm, Coll : P. T. Rajan, Reg. No. 1415; Bidnabad (South Andaman), 22.12.1987, 15 exs., 82-104 mm., Coll : Kamla Devi., Reg. No. 2708.

Diagnostic features : D. VI + I, 10; A. I, 10; P. 20; V. I, 5; Ls. 65-68. Snout obtuse ; papillae along lower margin; 5-8 canines in lower jaw on each side; dorsal fins separate; 20 predorsal scales. Body violet above, silvery-white below; sides of body with yellow spots in rows, the spots form into stripes on caudal peduncle; fins light reddish-violet; caudal fin with violet streaks, above and below bordered with orange.

Habitat : Found in creeks and freshwater pools.

Distribution : Andaman Is. and Indonesia.

Genus *Stenogobius* Bleeker, 1874*Stenogobius gymnopomus* (Bleeker, 1853)

1853. *Gobius gymnopomus* Bleeker, *Nat. Tijds. Ned. Indie.*, 4 : 270.

1993. *Stenogobius gymnopomus* : Kamla *et al*, *Environment & Ecology*, 11(4) : 814, fig. 2.

Material examined : Diglipur (North Andaman) 25.3.1989, 21 exs., 70-120 mm, Coll : H. S. Mehta & party, Reg. No. 2696; Andhabeda (South Andaman), 26.4.1991, 4 exs., 86-105 mm., Coll: Kamla Devi, Reg. No. 2697.

Diagnostic features : D. VI + I, 10; A. I, 10; P. 15-16; V. I, 5; Ls. 50. Head highly compressed; jaws sub-equal; finger-like flap on shoulder girdle; dorsal fins separate, 18 predorsal scales. Body light brown with 3 transverse bands on sides; a dark band descends from eye; brown blotches on head; all fins violet with several rows of dark spots.

Habitat : Found in creeks and pools.

Distribution : Indian Ocean, from coasts of India, Andaman Is. to Indonesia.

Genus *Stigmatogobius* Bleeker, 1874

Stigmatogobius sadanundio (Ham.-Butch., 1822)

1822. *Gobius sadanundio* Hamilton-Buchanan, *Fishes of Ganges*, p. 52, 366.

1991. *Stigmatogobius sadanundio* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 249, fig. 275.

Material examined : Betapur (Middle Andaman), 2.6.1989, 1 ex., 66 mm, Coll : P. T. Rajan, Reg. No. 1406.

Diagnostic features : D. VI + I, 7; A. I, 8; P. 17; V. I, 5; Ls. 28. Head sub-cylindrical; lower jaw prominent; interorbital broader than eye diameter; predorsal scales 8; caudal fin rounded. Body olive-green with black spots in two rows on sides; black blotch between 3rd and 6th dorsal spines; soft dorsal, caudal and anal fins with dark spots.

Habitat : Found in creeks.

Distribution : India, Andaman Is; Sri Lanka, Bangladesh, Indonesia to Philippines.

Genus *Taenioides* Lacepede, 1798

Taenioides cirratus (Blyth, 1860)

1860. *Amblyopus cirratus* Blyth, *J. Asiatic. Soc. Bengal.*, 29 : 147.

1953. *Taenioides cirratus* : Koumans, *Fishes of Indo-Australian Archipelago*, 10 : 270, fig. 67.

Material examined : Kalighat (North Andaman), 24.9.1987, 1 ex., 182 mm, Coll : H. S. Mehta & party, Reg. No. 1370.

Diagnostic features : D. VI, 47; A. I, 43; P. 13; V. I, 5. Body elongate and sub-cylindrical; a row of three short barbels on each side of chin; teeth in upper jaw 5 on each side, 4 in lower jaw; dorsal and anal fins separated from the caudal fin by deep notch; pectoral fins small; caudal fin rhomboidal. Body uniform grey.

Habitat : Found in creeks.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is. to Philippines.

Genus *Yongeichthys* Whitely, 1932*Yongeichthys criniger* (Valenciennes, 1837)

1837. *Gobius criniger* Valenciennes, *Hist. Nat. Poiss.*, 12 : 82.

1953. *Yongeichthys criniger* : Koumans, *Fishes of Indo-Australian Archipelago*, 10 : 178.

Material examined : Bambooflat (South Andaman), 14.11.1991, 2 exs., 79 & 94 mm, Coll : P. T. Rajan, Reg. No. 1999; Shoal Bay (South Andaman), 20.3.1988, 5 exs., 53-74 mm, Coll : Kamla Devi, Reg. No. 1389.

Diagnostic features : D. VI + I, 9; A. I, 9; P. 18-19; V. I, 5; Ls. 28-30 Depth 4.2-4.8, head 3.4-3.6 in standard length; anterior nostril in a tube; head naked; no scales on cheek and opercle; enlarged curved tooth on each side of lower jaw; 2nd spine of 1st dorsal prolonged; caudal fin obtuse. Body orange green above, lighter below; head and body with irregular large black spots; a mid lateral row of three blackish spots on sides of body, the last one at base of caudal fin; dorsal and caudal fins with irregular black spots.

Habitat : Found on silty-sand areas near reefs and creeks.

Distribution : Indo-West Pacific, from east coast of Africa, coasts of India, Andaman Is. to Ryukyu Is. and Australia to Samoa Islands.

Family ACANTHURIDAE

Body ovate to oblong and compressed; sides of caudal peduncle with a scalpel-like spine which folds into a groove; dorsal profile of head steep; eyes high on head; teeth spatulate with denticulate edges are slender and numerous with expanded incurved teeth; no teeth on palate; dorsal and anal fins continuous and unnotched; scales very small.

Key to Genera

- 1a One or two immovable bony plates, often keeled on sides of caudal peduncle *Naso*
- 1b Single sharp erective antorse spine on sides of caudal peduncle present or absent 2
- 2a No spine on caudal peduncle; snout produced; dorsal fin spines prolonged into a whip-like filament *Zanclus*
- 2b Single sharp spine on caudal peduncle; snout not produced; dorsal fin spines not filamentous 3
- 3a Dorsal fin with 4-5 spines; dorsal and anal fins elevated *Zebrasoma*
- 3b Dorsal fin with 6-9 spines; dorsal and anal fins not elevated 4
- 4a Teeth fixed, denticulate on both margins; dorsal spines 9 *Acanthurus*
- 4b Teeth flexible, slender with incurved tips; dorsal spines 8 *Ctenochaetus*

Genus *Acanthurus* Forsskal, 1775

Key to Species

- 1a Body pale with vertical bars; caudal fin truncate or slightly emarginate; caudal spine very small*A. triostegus*
- 1b Body not pale, with vertical black bars; caudal fin emarginate to lunate; caudal spine not small 2
- 2a Caudal fin emarginate; body blue; chest crossed by a broad white band; head black; caudal fin black and white*A. leucosternon*
- 2b Caudal fin strongly lunate; colour of body not as in 2a 3
- 3a Caudal spine length 1.9-2.0 in head; upper three-fourths of head and body with blue stripes, edged in black, alternating with yellow stripes*A. lineatus*
- 3b Caudal spine length 4.0 and above in head; colour not as in 3a 4
- 4a A horizontal black band on body extending posteriorly from upper end of gill opening; ground colour dark brown*A. nigricauda*
- 4b Dorsal and anal fins with 4 blue bands alternating with brownish yellow; a dull yellow area in front of eye*A. xanthopterus*

Acanthurus leucosternon Bennett, 1832

1832. *Acanthurus leucosternon* Bennett, *Proc. Zool. Soc., London*, p. 183.

1986. *Acanthurus leucosternon* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 813.

Material examined : Rutland Is. (South Andaman), 25.1.1994, 1 ex., 190 mm, Coll : D. V. Rao & party, Reg. No. 2535; Outram Is. (Ritchie's Archipelago), 2.3.1994, 2 exs., 192 mm, Coll : D. V. Rao & party, Reg. No. 2534; Narcondam Is. (North Andaman), 14.3.1994, 3 exs., 201 mm, Coll : D. V. Rao & party, Reg. No. 2533.

Diagnostic features : D. IX, 28-29; A. III, 24-26; P. 15-16; V. I, 5. Depth 1.68-1.8, head 3.5-3.7 in standard length; dorsal profile of snout concave; caudal fin emarginate. Body bright blue, the chest crossed by broad white band; head black; dorsal fin yellowish, the margin white; caudal peduncle and peduncular spine yellow; caudal fin black with broad crescent white patch in the middle; pectoral fins yellow; anal and ventral fins grey, edges white.

Habitat : Found around coral reefs in shallow areas.

Distribution : Indian Ocean, from east coast of Africa, islands of western Indian Ocean, Sri Lanka, Andaman Is and Indonesia.

***Acanthurus lineatus* (Linnaeus, 1758)**

(Fig. 226)

1758. *Chaetodon lineatus* Linnaeus, *Syst. Nat.*, p. 274.1986. *Acanthurus lineatus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 813, pl. 129.

Material examined : Rutland Is. (South Andaman), 27.1.1994, 2 exs., 288 mm; Coll : D. V. Rao & party, Reg. No. 2582; Outram Is. (Ritchie's Archipelago), 1.3.1994, 1 ex., 242 mm, Coll : D. V. Rao & party, Reg. No. 2524; Narcondam Is. (North Andaman), 13.3.1994, 2 exs., 264 mm, Coll : D. V. Rao, Reg. No. 2544.

Diagnostic features : D. IX, 27-28; A. III, 25-26; P. 16; V. I, 5. Depth 2.0-2.1, head 3.5-4.0 in standard length; caudal spine long; caudal fin lunate. Upper three-fourths of head and body with alternate black edged blue and yellow bands; lower fourth light lavender colour; dorsal and anal fins dark blue; caudal fin bluish with broad black area at base; pectoral fin hyaline; ventral fin yellowish-orange.

Habitat : Found in outer reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Andaman Is. and Sri Lanka to Japan, Australia to Marquesas Is.

****Acanthurus nigricauda* Dunker & Mohr, 1939**1939. *Acanthurus gahm nigricauda* Dunker & Mohr. *Zool. Mus. Zool. Anz.* 110 : 138-142.1986. *Acanthurus nigricauda* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 814; pl. 129.

Material examined : Narcondam Is. (North Andaman), 14.3.1994, 3 exs., 242-254 mm, Coll : D. V. Rao, Reg. No. 2536.

Diagnostic features : D. IX, 25-26; A. III, 23; P. 17; V. I, 5. Depth 2.1, head 3.37 in standard length; caudal fin strongly lunate. Body uniform dark brown without any spots or lines; a horizontal black band from upper end of gill opening to above middle of pectoral fin; a lanceolate black line extending anteriorly from caudal spine; all fins dark brown; outer third of pectoral fin yellow; caudal fin base white; margin of median fins white.

Habitat : Found on sandy bottom near coral heads.

Distribution : Indo-Pacific, from east coast of Africa, Lakshadweep, Andaman Is. to Philippines and Australia to Hawaiian Islands.

***Acanthurus triostegus* (Linnaeus, 1758)**

(Fig. 227)

1758. *Chaetodon triostegus* Linnaeus, *Syst. Nat.*, ed. 10, p. 274.1986. *Acanthurus triostegus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 816, pl. 127.

Material examined : Havelock Is. (Ritchie's Archipelago), 21.11.1991, 3 exs., 122-130 mm, Coll : D. V. Rao & party, Reg. No. 2070; Chidiyatapu (South Andaman), 31.7.1992, 1 ex., 141 mm, Coll : D. V. Rao, Reg. No. 2070; North Reef Is. (North Andaman), 25.3.1993, 8 exs., 105-160 mm, Coll : G. C. Rao & party, Reg. No. 2212; Rutland Is. (South Andaman), 27.1.1994, 1 ex., 141 mm, Coll : D. V. Rao & party, Reg. No. 2525; Narcondam Is. (North Andaman), 14.3.1994, 2 exs., 153 mm, Coll : D. V. Rao, Reg. No. 2543; Little Andaman, 16.3.1995, 1 ex., 146 mm, Coll : D. V. Rao, Reg. No. 2898.

Diagnostic features : D. IX, 22-24; A. III, 20-21; P. 14-16; V. I, 5. Depth 1.75-1.95, head 3.0-3.25 in standard length; caudal fin emarginate, caudal spine small. Body light greenish grey with 6 narrow black bars on head and body.

Habitat : Found around inshore coral reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Andaman Is. and to Philippines, Australia to Hawaiian Islands.

***Acanthurus xanthopterus* Valenciennes, 1835**

(Fig. 228)

1835. *Acanthurus xanthopterus* Valenciennes, *Hist. Nat. Poiss.*, 10 : 215.

1986. *Acanthurus xanthopterus* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 816.

Material examined : Little Andaman, 17.9.1990, 1 ex., 150 mm, Coll : K. V. Raman & party, Reg. No. 2177; Mayabunder (North Andaman), 17.8.1991, 1 ex., 260 mm, Coll : K. Chandra & party, Reg. No. 1914; Chidiyatapu (South Andaman), 31.7.1992, 1 ex., 166 mm, Coll : D. V. Rao, Reg. No. 1966; Port Blair (South Andaman), 5.9.1992, 1 ex., 190 mm, Coll : P. T. Rajan, Reg. No. 2022.

Diagnostic features : D. IX, 25-26; A. III, 23-24; P. 16; V. I, 5. Depth 1.9-2.23, head 3.32-3.71 in standard length; caudal fin lunate, caudal spine small. Body blue-grey with irregular dark grey lines; a dull yellow area behind and in front of eye; caudal fin bluish-grey; dorsal and anal fins with alternating yellow and blue stripes; outer third of pectoral yellow.

Habitat : Found on sandy areas adjacent to reefs.

Distribution : Indo-Pacific, from east coast of Africa to Andaman Is. and Sri Lanka to Philippines and to Japan.

Genus *Ctenochaetus* Gill, 1885

***Ctenochaetus striatus* (Quoy & Gaimard, 1825)**

1825. *Acanthurus striatus* Quoy & Gaimard, *Voy. Urani. Physic. Zool.*, p. 373, pl. 63, fig. 3.

1993. *Ctenochaetus striatus* : Rao *et. al*, *Environment & Ecology*, 11 : (4) : 885.

Material examined : North Reef Is. (North Andaman), 25.3.1993, 1 ex., 200 mm, Coll : G. C. Rao & party, Reg. No. 2241; Mayabunder (North Andaman), 28.3.1993, 2 exs., 118 & 191 mm, Coll : G.

C. Rao & party, Reg. No. 2204; Rutland Is. (South Andaman), 27.1.1994, 1 ex., 288 mm, Coll : D. V. Rao & party, Reg. No. 2583; Outram Is. (Ritchie's Archipelago), 1.3.1994, 1 ex., 215 mm, Coll : D. V. Rao & party, Reg. No. 2547; Narcondam Is. (North Andaman), 14.3.1994, 1 ex., 262 mm, Coll : D. V. Rao, Reg. No. 2537; Little Andaman, 16.3.1995, 2 exs., 192 & 255 mm, Coll : D. V. Rao, Reg. No. 2899.

Diagnostic features : D. VIII, 29-30; A. III, 25-26; P. 16; V. I, 5. Depth 1.85-2.31, head 3.0-3.12 in standard length; teeth movable; caudal fin lunate. Body dark brown with numerous blue longitudinal lines; head with small orange red dots dorsally; dorsal and anal fins with dark bluish bands.

Habitat : Found around coral reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Japan and Australia to Hawaiian Islands.

Genus *Naso* Lacepede, 1802

**Naso vlamingii* (Valenciennes, 1835)

1835. *Naseus vlamingii* Valenciennes, *Hist. Nat. Poiss.*, 10 : 293.

1986. *Naso vlamingii* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 823, pl. 128.

Material examined : Port Blair (South Andaman), 24.4.1991, 1 ex., 370 mm, Coll : Kamla Devi, Reg. No. 1804.

Diagnostic features : D. VI, 27; A. II, 29; P. 18; I, 3. Depth 2.83, head 4.2 in standard length; a prominent convexity on forehead; bony plates on caudal peduncle with sharp keel; caudal fin truncate, each corner with a long filament. Body yellowish-brown with irregular vertical blue lines on sides of body and small blue spots above and below; head with broad blue band extending anteriorly from eye; lips blue; caudal filaments blue.

Habitat : Found on outer reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Japan and Australia to Hawaiian Islands.

Genus *Zanclus* Cuv. & Val., 1831

Zanclus canescens (Linnaeus, 1748)

1748. *Chaetodon canescens* Linnaeus, *Syst. Nat.*, ed. 10, p. 272.

1986. *Zanclus canescens* : Heemstra & Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 823, pl. 127.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 2 exs., 71 mm, Coll : D. V. Rao, Reg. No. 2494.

Diagnostic features : D. VI, 41; A. III, 36; P. 18; V. I, 5. Depth 1.0, head 2.3 in standard length; body discoidal; no caudal spine; mouth produced; teeth bristle like; 3rd dorsal spine elongate and filamentous; short horns in front of eyes. Body white anteriorly, yellowish posteriorly, with two broad

black bars, one from nape to thorax and abdomen, the other across posterior body extending into dorsal and anal fins; a black edged orange yellow saddle on snout; caudal fin black, posterior margin white; ventral fin black.

Habitat : Found on coral reefs in small groups.

Distribution : Indo-Pacific, from east coast of Africa to Japan, and Australia to Hawaiian Islands.

Genus *Zebrasoma* Swainson, 1839

Zebrasoma veliferum (Bloch, 1797)

(Fig. 229)

1797. *Acanthurus velifer* Bloch, *Nat. Ausland Fische.*, 3 : 106.

1986. *Zebrasoma veliferum* : Randall, in Smith & Heemstra, *Smith's Sea Fishes*, p. 818, pl. 130.

Material examined : Kamorta Is. (Nicobar Group), 9.2.1993, 1 ex., 96 mm, Coll : D. V. Rao & party, Reg. No. 2287; North Reef Is. (North Andaman), 9, 3, 1993, 1 ex., 84 mm, Coll : G. C. Rao & party, Reg. No. 2267; Rutland Is. (South Andaman), 17.10.1993, 1 ex., 79 mm, Coll : D. V. Rao & party, Reg. No. 2424; Outram Is. (Ritchie's Archipelago) 2.3.1994, 1. ex., 223 mm, Coll : D. V. Rao & party, Reg. No. 2287.

Diagnostic features : D. IV, 28-30; A. III, 22; P. 15-16; V. I, 5. Depth 1.92-2.1, head 3.26-3.46 in standard length; dorsal and anal fins elevated; snout produced. Body white with broad brown bars containing yellowish lines; the last bar black and covers caudal peduncle; head whitish with yellow dots and vertical lines; a black bar through eye; dorsal and anal fins dark brown with broadly curving alternate dark brown and yellow bands; caudal fin light brown with yellow spots.

Habitat : Found in sheltered reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Ryukyu Is. and Australia to Hawaiian Islands.

Family SIGANIDAE

Body compressed, covered with small scales; mouth small and not protractile; ventral fins with an inner and outer spines separated by three soft rays; spinous part of dorsal fin preceded by an embedded, procumbent spine; jaw with a row of small incisiform teeth; caudal fin emarginate or forked.

Genus *Siganus* Forsskal, 1775

Key to species

- 1a Middle region of thorax scaleless; dorsal and anal spines stout or slender.....2
- 1b Middle region of thorax scaled; dorsal and anal spines stout 3

- 2a Cheek scales fine, densely packed over lower preopercular region; body pale to whitish with labyrinth of narrow dark-brown bands over head and body*S. spinus*
- 2b Cheek scales fine, few embeded on lower preopercular region; body silvery grey with pearly round and elongate blue spots on body and nape*S. cancellatus*
- 3a More than 29 scale rows between lateral line and base of 2nd to 4th dorsal spines; shortest distance between bony orbit and upper lip less than half diameter of bony orbit.....
.....*S. javaus*
- 3b Fewer than 29 scale rows between lateral line and base of 2nd to 4th dorsal spines; shortest distance between bony orbit and upper lip greater than half diametre of bony orbit.....4
- 4a No dark bands on head and anterior body; caudal deeply forked or emarginate 5
- 4b A diagonal ocular band and another shoulder band present; anterior upper two-thirds of body with bluish spots; caudal fin emarginate*S. virgatus*
- 5a A large yellow spot below rear base of soft dorsal fin; body with bronze-yellow spots; caudal fin emarginate :.....*S. guttatus*
- 5b No yellow spot below rear base of dorsal; colour pattern not as in 5a 6
- 6a Caudal fin deeply forked; head and body covered with dark spots.....*S. stellatus*
- 6b Caudal fin emarginate; head and body with blue to silvery vermiculate lines
.....*S. vermiculatus*

***Siganus cancellatus* (Park, 1797)**

1797. *Chaetodon cancellatus* Park, *Linn. Trans.*, 3 : 33.

1990. *Siganus cancellatus* : Woodland, *Indo-Pacific Fishes*, No. 19, p. 51, pl. IIIB.

Material examined : Car Nicobar Is., 6.9.1988, 1 ex., 145 mm, Coll : H. S. Mehta & party, Reg. No. 2319; Bambooflat (South Andaman), 14.9.1992, 2 exs., 175 & 217 mm, Coll : P. T. Rajan, Reg. No. 2021; Mayabunder (North Andaman), 15.3.1993, 2 exs., 128 & 137 mm, Coll : G. C. Rao & party, Reg. No. 2303.

Diagnostic features : D. XIII, 10; A. VII, 9; P. 16; V. I, 3. Depth 2.43-2.56, head 3.92-4.11 in standard length; dorsal fin spines slender and pungent; few embeded scales on lower third of cheek; middle of thorax scaleless between ventral ridge. Body silvery grey above, silvery below; nape and upper surface of head olive green; head and body with pearly white spots, some are elongate; a dark patch below origin of lateral line; soft dorsal and anal fins dusky.

Habitat : Found around reef slopes in shallow area.

Distribution : Indo-West Pacific, from Persian Gulf, Pakistan, coasts of India, Andaman & Nicobar Is., Sri Lanka to South China and Australia.

***Siganus guttatus* (Bloch, 1787)**

1787. *Chaetodon guttatus* Bloch, *Ausland Fische.*, 3 : 35.

1990. *Siganus guttatus* : Woodland, *Indo-Pacific Fishes*, No. 19, p. 93.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 2 exs., 215 mm, Coll : G. C. Rao & party, Reg. No. 2176; Shoal Bay (South Andaman), 25.1.1993, 3 exs., 193-201 mm, Coll : P. T. Rajan, Reg. No. 2169.

Diagnostic features : D. XIII, 10; A. VII, 9; P. 16; V. II, 3. Depth 2.0-2.06, head 3.33-5.3 in standard length; cheek covered with scales; mid-line of thorax scaled; ventral ridge scaleless; dorsal fin spines stout and pungent. Body dusky blue above, silvery below with large round golden yellow spots on body except on thorax and belly; a bright spot on back adjacent to last dorsal fin ray; head with vermiculated yellow lines.

Habitat : Found around reef slopes in shallow waters.

Distribution : Indo-West Pacific, from Andaman Is. to Ryukyu Is.

***Siganus javus* (Linnaeus, 1766)**

1766. *Teuthis javus* Linnaeus, *Syst. Nat.*, ed. 12, p. 507.

1990. *Siganus javus* : Woodland, *Indo-Pacific Fishes*, No. 19, p. 67, pl. IV-c.

Material examined : Wrightmyo (South Andaman), 2.4.1989, 2 exs., 205 & 255 mm, Coll : G. C. Rao & party, Reg. No. 1616; Bambooflat (South Andaman), 14.9.1992, 2 exs., 175 mm, Coll : P. T. Rajan, Reg. No. 2020.

Diagnostic features : D. XIII, 10; A. VII, 9; P. 18; V. II, 3. Depth 2.3-2.4, head 3.62-3.85 in standard length; cheek and mid-line of thorax scaled; ventral ridge scaleless; dorsal fin spines slender; caudal fin emarginate. Body bluish-white above, light below with numerous blue spots on head, nape and upper half of body; ventral part of body with narrow irregular bluish-grey stripes form a reticulum; sides of head, dorsal and anal fins yellow; caudal fin dusky with a large black patch in the middle.

Habitat : Found in thick coral reef areas.

Distribution : Indo-West Pacific, from Red Sea through coasts of India, Andaman Is. and Sri Lanka to South China Sea, and Australia to Vanuatu.

***Siganus spinus* (Linnaeus, 1758)**

(Fig. 230)

1758. *Sparus spinus* Linnaeus, *Syst. Nat.*, ed. 10, p. 281.

1990. *Siganus spinus* : Woodland, *Indo-Pacific Fishes.*, No. 19, p. 34, pl. IIA.

Material examined : Chidiyatapu (South Andaman), 19.8.1993, 2 exs., 130 & 140 mm, Coll : D. V. Rao & party, Reg. No. 2790.

Diagnostic features : D. XIII, 10; A. VII, 9 ; P. 17; V. II, 3. Depth 2.65, head 3.8 in standard length; cheek scales small and densely arranged; mid-line of thorax scaleless; caudal fin truncate. Colour whitish with labyrinth of narrow brown bands on head and body; fins mottled with dark brown.

Habitat : Found on outer reef areas in small numbers.

Distribution : Indo-West Pacific, from coasts of India to Japan and Australia to Society Islands.

***Siganus stellatus* (Forsskal, 1775)**

(Fig. 231)

1775. *Sparus stellatus* Forsskal, *Descript. Animal.*, p. 26.

1990. *Siganus stellatus* : Woodland, *Indo-Pacific Fishes*, No. 19, p. 78, pl. IV A, B.

Material examined : Havelock Is. (Ritchie's Archipelago), 17.3.1991, 1 ex., 155 mm, Coll : B. Mitra & party, Reg. No. 2385; Bambooflat (South Andaman), 26.11.1992, 2 exs., 272 mm, Coll : P. T. Rajan, Reg. No. 2147; Shoal Bay (South Andaman), 25.1.1993, 1 ex., 205 mm, Coll : P. T. Rajan, Reg. No. 2168; Kamorta Is. (Nicobar Group), 17.2.1993, 1 ex., 123 mm, Coll : D. V. Rao & party, Reg. No. 2304.

Diagnostic features : D. XIII, 10; A. VII, 9; P. 16; V. II, 3. Depth 2.15-2.28, head 3.41-3.98 in standard length; cheek and midline of thorax with scales; dorsal fin spines not pungent; caudal fin forked. Body light yellow with chocolate brown spots on head and body, extending onto caudal fin and soft portions of dorsal and anal fins.

Habitat : Found on coral reef areas.

Distribution : Indo-West Pacific, from east coast of Africa to Indonesia and Thailand.

***Siganus vermiculatus* (Valenciennes, 1835)**

(Fig. 232)

1835. *Amphacanthus vermiculatus* Valenciennes, *Hist. Nat. Poiss.*, p. 126.

1990. *Siganus vermiculatus* : Woodland, *Indo-Pacific Fishes*, No. 19, p. 98, pl. VIII A.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 220 mm, Coll : G. C. Rao & party, Reg. No. 1912; Diglipur (North Andaman), 19.5.1989, 1 ex., 107 mm, Coll : H. S. Mehta & party, Reg. No. 2700; Bambooflat (South Andaman), 30.11.1992, 1 ex., 171 mm, Coll : P. T. Rajan, Reg. No. 2138.

Diagnostic features : D. XIII, 10; A. VII, 9; P. 16; V. II, 3. Depth 2.0-2.1, head 3.42-3.71 in standard length; cheek and thorax scaleless; caudal fin emarginate. Body bluish-white with irregular

vermiculate pattern of dark brown on body except ventrally spotted with brown; head with narrow brown bands; caudal fin with small brown spots.

Habitat : Found near rocky areas adjacent to reefs.

Distribution : Indo-West Pacific, from coasts of India to Philippines and Australia to Fiji Islands.

***Siganus virgatus* (Valenciennes, 1838)**

(Fig. 233)

1838. *Amphacanthus virgatus* Valenciennes, *Hist. Nat. Poiss.*, p. 133.

1990. *Siganus virgatus* : Woodland, *Indo-Pacific Fishes*, No. 19, p. 86, pl. VII A.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 205 mm, Coll : G. C. Rao & party, Reg. No. 1778; Mayabunder (North Andaman), 17.8.1991, 2 exs., 185 mm, Coll : K. Chandra & party, Reg. No. 1688; North Reef Is. (North Andaman), 9.3.1993, 1 ex., 205 mm, Coll : G. C. Rao & party, Reg. No. 2270; Tarmugli Is. (South Andaman), 2.9.1993, 2 exs., 145 mm, Coll : D. V. Rao & party, Reg. No. 2791.

Diagnostic features : D. XIII, 10; A. VII, 9; P. 16; V. II, 3. Depth 1.79-2.2, head 3.3-3.39 in standard length; cheek and mid-line of thorax scaled; caudal fin emarginate. Body brownish above, whitish below with two oblique blue edged brownish red bands, one from nape to chin, the other from base of 4th dorsal spine to base of pectoral fin; interorbital and snout with alternating blue and yellow lines; dorsal and anal fins hyaline with orange tint; caudal fin orangish.

Habitat : Found on coral reefs.

Distribution : Indo-West Pacific, from southern India to Ryukyu Is. and Australia.

Family TRICHIURIDAE

Body extremely elongate and compressed, ribbon-like; mouth large, lower jaw pojecting; strong teeth on jaws, those in front of upper jaw fang-like; dorsal fin long, beginning shortly behind eye; ventral fins reduced to a scale like spine and one rudimentary ray or absent; anal fin reduced to a series of small spines; caudal fin small or absent; body without scales. No distinct marks on body, metallic silvery.

Genus *Lepturacanthus* Fowler, 1905

***Lepturacanthus savala* (Cuvier, 1829)**

1829. *Trichiurus savala* Cuvier, *Regne. Animal*, 2 : 219.

1984. *Lepturacanthus savala* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 786, fig. 319.

Material examined : Port Blair (South Andaman), 31.7.1993, 1 ex., 400 mm, Coll : D. V. Rao, Reg. No. 3011; Chidiyatapu (South Andaman), 19.8.1993, 1 ex., 286 mm, Coll : D. V. Rao & party, Reg. No. 3012.

Diagnostic features : D. 113-114; P. I, 10. Body elongate and ribbon-like; depth 18.0, head 8.5 in total length; eye 7.8 in head; 8 gill rakers on lower arm of first arch; anal fin reduced to a separate spines; ventral and caudal fins absent; post anal scute prominent and dagger-like. Body steel-blue with metallic reflections.

Habitat : Found in outer reef areas.

Distribution : Indo-West Pacific, from coasts of India to Japan and Australia.

Family SCOMBRIDAE

Body elongate and fusiform, slightly compressed in some species; snout pointed; mouth large; teeth strong or weak; no canines; tongue and palate may be toothed; gill membranes free from isthmus; first dorsal depressible into a groove; finlets present behind dorsal and anal fins; caudal fin deeply forked; fin rays completely covering hypural plate; 2 small keels on each side of caudal peduncle and a large keel in between in many species; body covered with small scales or restricted to a corselet behind head and around pectorals.

Key to Genera

- 1a Two small keels on either side of caudal peduncle; 5 dorsal and anal finlets; adipose eye lids present ***Rastrelliger***
- 1b Two small keels and a large keel between them on either side of caudal peduncle; 6-10 dorsal and anal finlets; no adipose eye lids 2
- 2a No corselet of scales on the body ***Grammatorcynus***
- 2b Corselet of scales on the body well developed 3
- 3a Inter pelvic process single and as long as ventral; dorsal fins widely separated ***Auxis***
- 3b Inter pelvic process bifid, much shorter than ventrals; dorsal fins barely seaparated.....
..... ***Euthynnus***

Genus *Auxis* Cuvier, 1829

Key to Species

- 1a Corselet of scales short, tapering abruptly behind 1st dorsal; pectoral fins reaching to scaleless area above corselet; dark stripes on back oblique ***A. thazard***
- 1b Corselet of scales long, continuing as a wide band to behind 1st dorsal fin; pectoral fins not extending to scaleless area above corselet; dak stripes on back almost vertical.....
..... ***A. rochei***

***Auxis rochei* (Rasso, 1810)**

1810. *Scomber rochei* Rasso *Ichth. Nice. Nat. Paris.*, p. 165.

1986. *Auxis rochei* : Collette, in Smith & Heemstra, *Smith's Sea Fishes*, p. 833, fig. 249.3.

Material examined : Panighat (South Andaman), 24.4.1993, 1 ex., 230 mm, Coll : P. T. Rajan, Reg. No. 2307.

Diagnostic features : D. X + 13 + 8 finlets; A. 13 + 7 finlets; P. 23; V. I, 5. Depth 4.65, head 3.68 in standard length; body robust, elongate and rounded; two dorsal fins, separated by a large interspace; body naked except for corselet, which is well developed along lateral line as a band more than six scales wide under 2nd dorsal origin; interpelvic process single, as long as ventrals; caudal peduncle slender with a strong central keel on each side between two small keels. Body bluish, deep purple or black on head, belly silvery; 15 fairly broad, sub-vertical bars in scaleless area above lateral line; pectoral and ventral fins purple, their inner side black.

Habitat : Found in outer reef areas, epipelagic.

Distribution : Wide spread in Indo-Pacific region.

***Auxis thazard* (Lacepede, 1802)**

1802. *Scomber thazard* Lacepede, *Hist. Nat. Poiss.*, 3 : 9.

1984. *Auxis thazard* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 797, fig. 323.

Material examined : Port Blair (South Andaman), 24.8.1993, 1 ex., 375 mm, Coll : D. V. Rao, Reg. No. 2410.

Diagnostic features : D. XI + 12 + 8 finlets; A. 13 + 7 finlets; P. 23; V. I, 5. Inter pelvic process is large; corselet of scales short, tapering abruptly along the lateral line; pectoral reaching to scaleless area above corselet. Body bluish, purplish black on head; horizontal to oblique wavy lines in scaleless area above lateral line; belly silvery; inner side of pectoral and ventral fins black.

Habitat : Found in outer reef areas.

Distribution : Indo-West Pacific, from Pakistan, coasts of India, Andaman Is. to Japan and Australia to Samoa Islands.

Genus *Euthynnus* Lutken, 1882

***Euthynnus affinis* (Cantor, 1849)**

1849. *Thynnus affinis* Cantor, *J. Royal Asiat. Soc. Bengal.*, 18 : 1088.

1986. *Euthynnus affinis* : Collette, In Smith & Heemstra, *Smith's Sea Fishes*, p. 833, pl. 131.

Material examined : Shoal Bay (South Andaman), 21.4.1993, 1 ex., 273 mm, Coll : P. T. Rajan, Reg. No. 2219.

Diagnostic features : D. 14 + 12 + 8 finlets; A. 13 + 7 finlets; P. 27; V. I, 5. Depth 4.1, head 3.65 in standard length; body robust and fusiform; a patch of teeth present on vomer, elongate patches on palatine; swim bladder absent; two dorsal fins, narrowly separated; inter-pelvic process bifid, much shorter than ventral. Body bluish-black on back, lower sides and belly silvery; a complicated striped pattern which does not extend forward beyond middle of 1st dorsal fin on back upto the level of lateral line; dark spots between pectoral and ventral fins present; ventral fin blue-black.

Habitat : Found in outer reef areas, epipelagic.

Distribution : Wide spread in tropical Indo-West Pacific.

Genus *Grammatorcynus* Gill, 1862

Grammatocrynus bicarinatus (Quoy & Gaimard, 1824)

1824. *Thynnus bicarinatus* Quoy & Gaimard, *Voy. Urani. et. Physic. Zool.*, pl. 61, fig. 1.

1984. *Grammatorcynus bicarinatus* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 800.

Material examined : Port Blair (South Andaman), 21.8.1993, 1 ex., 340 mm, Coll : D. V. Rao, Reg No. 3013.

Diagnostic features : D. 12 + 11 + 7 finlets; A. 11 + 6 finlets; P. 24; V. I, 5. Depth 4.9, head 4.0 in standard length; body spindle shaped; a row of strong, pointed teeth in jaws; 1st dorsal fin depressed in a deep groove; small scales on body; no corselet; inter-pelvic process between ventrals single; two lateral lines, the lower joining the upper behind pectoral fin base and at base of caudal fin; two small keels and another between them on either side of caudal peduncle. Body silvery-blue, lighter ventrally.

Habitat : Found in coastal waters.

Distribution : Indo-Pacific, from coasts of India, Lakshadweep, Andaman Is. to Japan and Australia to Hawaiian Islands.

Genus *Rastrelliger* Jordan & Starks, 1908

Key to Species

- 1a Gill rakers 20-25 on lower arm of 1st arch and short.....*R. faughni*
- 1b Gill rakers 32 or above on lower arm of 1st arch, visible when mouth is opened 2
- 2a Body depth 4.0-4.8 in SL; head length about equal to body depth; dark longitudinal stripes on upper half of body*R. kanagurta*
- 2b Body depth 3.5-4.0 in SL; head length distinctly smaller than body depth; one or two rows of dark spots on back*R. brachysoma*

Rastrelliger brachysoma (Bleeker, 1851)

1851. *Scomber brachysoma* Bleeker, *Nat. Tijds. Ned. Indie.*, 1 : 356.

1984. *Rastrelliger brachysoma* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 805, fig. 327.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 190 mm, Coll : G. C. Rao & party, Reg. No. 1753; Little Andaman, 23.4.1991, 2 exs., 120 & 138 mm, Coll : P. T. Rajan, Reg. No. 1756; Mayabunder (North Andaman), 15.8.1991, 2 exs., 185 & 230 mm, Coll : K. Chandra & party, Reg. No. 1755; 10.1.1992, 1 ex., 210 mm, Coll : D. V. Rao, Reg. No. 2340.

Diagnostic features : D. VIII-IX + 12 + 5 finlets; A. 12 + 5 finlets. Depth 3.7-4.0 in standard length; body deep and moderately compressed; 35-46 gill rakers on lower arm of 1st arch, very long, visible when mouth is opened; widely separated two dorsal fins. Body bluish-green above, belly silvery with yellowish tinge; 1 or 2 rows of dark spots on back; spinous dorsal yellowish with black edge; pectoral and ventral fins dusky, other fins yellowish; a faint dark blotch behind pectoral fin base.

Habitat : Found in coastal waters.

Distribution : Indo-West Pacific, from Andaman Is. to Philippines and Fiji.

***Rastrelliger faughni* (Matsuai, 1967)**

1967. *Rastrelliger faughni* Matsuai, *Copeia*, p. 74, fig. 1.

1984. *Rastrelliger faughni* : Talwar & Kacker, *Commercial Sea Fishes of India*, p. 806, fig. 328.

Material examined : Bambooflat (South Andaman), 14.9.1992, 1 ex., 200 mm, Coll : P. T. Rajan, Reg. No. 2291.

Diagnostic features : D. IX + 12 + 5 finlets; A. 12 + 5 finlets; P. 21; V. I, 5. Depth 5.0 in standard length; body fusiform; 23 gill rakers on lower arm of 1st arch, very short; teeth minute, pointed, in a single series; no teeth on palatines and vomer; two dorsal fins well separated. Body bluish-green above, silvery below; two rows of black spots on back below dorsal fin base from origin of 1st dorsal to caudal peduncle; a black blotch behind pectoral base; outer margin of dorsal and pectoral fins dark.

Habitat : Found in coastal waters.

Distribution : Indo-West Pacific, from east coast of India, Andaman Is. to Philippines.

***Rastrelliger kanagurta* (Cuvier, 1817)**

1817. *Scomber kanagurta* Cuvier, *Regne. Animal.*, 2 : 313.

1986. *Rastrelliger kanagurta* : Collette, in Smith & Heemstra, *Smith's Sea Fishes*, p. 834, pl. 131.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 1 ex., 245 mm, Coll : G. C. Rao & party, Reg. No. 1757; Mayabunder (North Andaman), 11.1.1992, 1 ex., 117 mm, Coll : D. V. Rao & party, Reg. No. 2357.

Diagnostic features : D. IX + 12 + 5 finlets; A. 12 + 5 finlets; P. 19; V. I, 5. Depth 4.0-4.8 in standard length; head length longer than body depth; 42-46 gill rakers on lower arm of 1st arch, and very long; no teeth on vomer and palatines; swim bladder present; two dorsal fins widely separated.

Body blue-green above, sides silvery with golden tint; narrow dark longitudinal bands on upper part of body; two rows of small dark spots on lower side of dorsal fin rays and black spot on body near lower margin of pectoral fin; dorsal fin yellowish with black tips; caudal and pectoral fins yellowish; ventral fin dusky.

Habitat : Found in coastal waters.

Distribution : Wide spread in Indo-Pacific region.

Family ANABANTIDAE

Body oblong and compressed posteriorly; head broad; operculum serrate with two spines; mouth large, upper jaw protrusile; jaws with small conical teeth; palatine edentate; single dorsal fin; pectoral and caudal fins rounded; scales ctenoid; two lateral lines.

Genus *Anabas* Cuvier & Cloquet, 1816

Anabas testudineus (Bloch, 1795)

1795. *Anthias testudineus* Bloch, *Nat. Ausland. Fische.*, (6) : 121.

1991. *Anabas testudineus* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries.*, 2 : 996, fig. 283.

Material examined : Metakari (South Andaman), 16.4.1982, 2 exs., 103 mm, Coll : S. K. Goswamy, Reg. No. 1330; Manpur (South Andaman), 12.1.1986, 2 exs., 116 mm, Coll : Kamla Devi, Reg. No. 1338.

Diagnostic features : D. XVI-XVII, 8-9 : A. VIII, 9-10; P. 14; V. I, 5; LI. 24-28. Body elongate and moderately deep; depth 3.25-3.4, snout 14.2-16.5 in standard length; jaws with villiform teeth; scales on the body very large; caudal fin rounded. Body dark grey, fading to pale yellow ventrally; a dark spot at base of caudal fin and at base of pectoral fin; dorsal and caudal fins grey; pectoral and anal fins pale.

Habitat : Found in fresh water canal and ponds.

Distribution : Pakistan, India, Andaman Is, Sri Lanka, Bangladesh, Burma, Indionesia and Philippines.

Family CHANNIDAE

Body elongate and cylindric, mouth large; jaws and palate dentate; eyes located in anterior half of head; single soft dorsal; scales cycloid and ctenoid; caudal fin rounded, air bladder present.

Genus *Channa* Scopoli, 1777

Key to Species

- 1a Dorsal rays 32-37; ventral fin less than half length of pectoral; pectoral fins with bluish vertical bands *C. orientalis*

- 1b Dorsal rays less than 32; ventral fin more than half length of pectoral fin; pectoral fins without vertical bands *C. punctatus*

***Channa orientalis* Bloch & Sch., 1801**

1801. *Channa orientalis* Bloch & Schneider, *Syst. Ichth.*, p. 296, pl. 90, fig. 2.

1991. *Channa orientalis* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries*, 2 : 1019, fig. 289.

Material examined : Aniket (South Andaman), 8.12.1977, 2 exs., 156 & 168 mm Coll : M. Sil, Reg. No. 1329; Manpur (South Andaman), 12.1.1986, 2 exs., 148 mm, Coll : Kamla Devi, Reg. No. 1347.

Diagnostic features : D. 34-36; A. 21-23; P. 14-15; V. 6; LI. 44-48. Body fairly rounded, eye 5.5-6.0 in head; 4-5 scale rows between preopercular angle and posterior border of orbit; predorsal scales 12. Body greenish-black, ventral side pale; a row of dark oblique bands above and below lateral line; pectoral fins with a series of alternate blue and pale orange vertical bands; outer margin of caudal fin orange and barred.

Habitat : Found in streams.

Distribution : Afghanistan, Pakistan, India, Andaman Is., Nepal, Sri Lanka, Burma, Bangladesh and East Indise.

***Channa punctatus* (Bloch, 1793)**

1793. *Ophiocephalus punctatus* Bloch, *Nat. Ausland. Fische.*, 7 : 139, pl. 358.

1991. *Channa punctatus* : Talwar & Jhingran, *Inland Fishes of India and Adjacent Countries.*, 2 : 1020, fig. 290.

Material examined : Manpur (South Andaman), 12.1.1986, 3 exs., 97-103 mm, Coll : Kamla Devi, Reg. No. 3043; Kadkachang (South Andaman), 29.7.1978, 1 ex., 95 mm, Coll : M. K. Dev Roy, Reg. No. 3044.

Diagnostic features : D. 32; A. 22; P. 16; V. 6; LI. 39. Body elongate; eye 8.1-8.35 in head; scale rows between preopercular angle and posterior border of orbit present; predorsal scales 12. Upper side of body and flanks dark-green, ventral side pale yellow; several dark blotches on sides of body; dorsal, anal and caudal fins dusky.

Habitat : Found in freshwater streams.

Distribution : Afghanistan, Pakistan, India, Andaman Is., Sri Lanka, Nepal, Bangladesh, Burma and China.

Order PLEURONECTIFORMES

Body highly compressed and flat, head with both eyes on the same side, either left or right; pectoral fins absent or present; dorsal and anal fins usually long; scales cycloid or ctenoid; eyed side of the body differs from the blind side in colour, development of paired fins and lateral line.

Family PSETTODIDAE

Dorsal fin origin well behind eye; anterior rays of dorsal spinous; eyes on the left side of the body; mouth large, with large strong teeth; supra-maxillary bone well developed; scales ctenoid; lateral line developed on both sides of body.

Genus *Psettodes* Bennett, 1831

Psettodes erumei (Bloch & Sch., 1801)

1801. *Pleuronectis erumei* Bloch & Schneider, *Syst. Ichth. Bloch*, p. 150.

1986. *Psettodes erumei* : Heemstra, in Smith & Heemstra, *Smith's Sea Fishes*, p. 853, fig. 257,1.

Material examined : Mayabunder (North Andaman), 15.8.1991, 1 ex., 290 mm, Coll : K. Chandra & party, Reg. No. 1676.

Diagnostic features : D. 54; A. 37; P. 16; V. I, 6; LI. 73. Depth 2.45, head 3.55 in standard length; body oval and flat; upper eye close to dorsal edge of body; jaws with large canines in two rows; gill-rakers absent; lateral line developed on both sides of body; dorsal fin origin well behind eyes. Body dark brown with faint four black bars.

Habitat : Found on muddy-sand bottom in coastal areas.

Distribution : Indo-West Pacific, from east coast of Africa, Red Sea to coasts of India, Andaman Is., to Japan, southwards to Australia.

Family BOTHIDAE

Eyes on left side of eye; mouth protractile, jaws moderately prominent; pre-operacle margin free; dorsal and anal fins separate from caudal fin; no fin spines; anus on blind side; pectoral and ventral fins present; single lateral line.

Key to Genera

- 1a Bases of ventral nearly equal in size and symmetrical in position *Pseudorhombus*
- 1b Base of ventral on eyed side on mid-ventral line; 1st ray of ventral on eyed side anterior to that of ventral on blind side *Bothus*

Genus *Bothus* Rafinesque, 1810

Bothus pantherinus (Ruppell, 1830)

(Fig. 234)

1830. *Rhombus pantherinus* Ruppell, *Atlas, Reise, Nordl. Afrika Fische. Rothen Meeres*, p. 121.

1986. *Bothus pantherinus* : Hensley, in Smith & Heemstra, *Smith's Sea Fishes*, p. 856, fig. 259.5.

Material examined : Hut Bay (Little Andaman), 14.9.1990, 6 exs., 87-134 mm, Coll : K. V. Raman & party, Reg. No. 2092; South Reef Is. (North Andaman), 23.3.1993, 1 ex., 93 mm, Coll : G. C. Rao & party, Reg. No. 2371.

Diagnostic features : D. 86-92; A. 67-71; P. 9-10; LI. 78-81. Depth 1.72-1.84, head 3.5-3.65 in standard length; eyes on left side of head, eye with tentacles; pectoral fin of eyed side prolonged; spines on snout and edge of eye. Colour on eye side brownish with numerous dark spots, blotches and rings extending onto the fins; a distinct dark blotch on middle of lateral line; pectoral of eyed side with cross bands.

Habitat : Found on sandy bottom near coral rubble.

Distribution : Indo-Pacific, from east Africa to Lakshadweep, coasts of India, Andman Is., Sri Lanka, Indonesia to Japan, southwards Australia to Hawaiian Islands.

Genus *Pseudorhombus* Bleeker, 1862

Key to Species

- 1a Dorsal membrane between 1st dorsal ray and snout high; flap-like*P. elevatus*
- 1b Dorsal membrane between 1st dorsal ray and snout low, not flap-like*P. arsius*

Pseudorhombus arsius (Ham.-Buch., 1822)

1822. *Pleuronectes arsius* Hamilton & Buchanan, *Fishes of Ganges*, p. 128.

1986. *Pseudorhombus arsius* : Hensley, in Smith & Heemstra, *Smith's Sea Fishes*, p. 861, pl. 133.

Material examined : Mayabunder (North Andaman), 15.8.1991, 1 ex., 230 mm, Coll : K. Chandra & party, Reg. No. 1675; Rangat Bay (Middle Andaman), 19.8.1991, 1 ex., 100 mm, Coll : K. Chandra & party, Reg. No. 3239.

Diagnostic features : D. 74-76; A. 58-61; P. 11-12; LI. 72-76. Depth 1.8-1.95, head 3.4-3.55 in standard length; maxilla extending to below rear half of lower eye; first dorsal ray inserted over anterior nostril; gill-rakers on lower arm of first arch 10-12. Body light brown with dark spots and rings on eye side; a large dark spot at the junction of straight and curved parts of lateral lines and two smaller ones on lateral line at posterior part of body and near anterior end of caudal peduncle; median fins with scattered dark spots.

Habitat : Found on sandy bottom near coral rubble.

Distribution : Indo-West Pacific, from east coast of Africa, coasts of India, Andaman Is., to Indonesia and Philippines to Ryukyu Is. and from Marianus to Marshall Islands.

Pseudorhombus elevatus (Ogilby, 1912)

1912. *Pseudorhombus elevatus* Ogilby, *Mem. Queensland*, 1 : 45.

1986. *Pseudorhombus elevatus* : Hensley, in Smith & Heemstra, *Smith's Sea Fishes*, p. 862, fig. 259.18.

Material examined : Wrightmyo (South Andaman), 4.2.1989, 2 exs., 165 mm, Coll : G. C. Rao & party, Reg. No. 1934.

Diagnostic features : D. 69; A. 55; P. 10-11; V. I, 5; LI. 67-69. Depth 1.85, head 3.55 in standard length; gill-rakers on lower arm of first arch 16-18; dorsal fin origin above anterior nostril of blind side. Body pale brown with faint blotches arranged in five longitudinal rows; large dark blotch at the junction of straight and curved parts of lateral line and two smaller ones on posterior part of lateral line; median fins with small dark spots.

Habitat : Found on sand and mud bottoms.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is. to Australia.

Family CYNOGLOSSIDAE

Tongue-shaped flat fishes, with eyes on left side of head; lips some times fringed; rostral hook present below mouth; pre-opercle margin covered with skin; dorsal fin origin at or in front of eye; dorsal and anal fins confluent with caudal; pectoral fins absent; only left ventral fin present.

Key to Genera

- 1a Lips on ocular side distinctly fringed *Paraplagusia*
- 1b Lips not fringed *Cynoglossus*

Genus *Cynoglossus* Ham.-Buch, 1822

Cynoglossus lida (Bleeker, 1851)

1851. *Plagusia lida* Bleeker, *Nat. Tijds. Ned. Indie.*, 1 : 413.

1993. *Cynoglossus lida* : Rao *et al*, *Environment & Ecology*, 11 (4) : 886.

Diagnostic features : D. 102-106; A. 78-83; V. 4. Depth 4.45-4.5, head 4.8-5.0 in total length. Body flat and elongate; two nostrils on ocular side; the anterior one tubular and in front of lower eye, posterior one situated in inter-orbital space; snout broadly rounded; rostral hook rather long; two lateral lines on ocular side; median line with 84-88 scales; 13 scale rows between two lateral lines. Body brown with black specks; fins dusky; blind side whitish.

Habitat : Found on sandy rubble bottom.

Distribution : Indo-West Pacific, from Mozambique, coasts of India, Andaman Is., Sri Lanka, Indonesia to Philippines.

Genus *Paraplagusia* Bleeker, 1868

Paraplagusia bilineata (Bloch, 1787)

1787. *Pleuronectes bilineata* Bloch, *Nat. Ausland Fische*, 3 : 29, pl. 188.

1993. *Paraplagusia bilineata* : Rao *et al*, *Environment & Ecology*, 11(4) : 886.

Material examined : North Reef Is. (North Andaman), 23.3.1993, 3 exs., 64-160 mm, Coll : G. C. Rao & party, Reg. No. 2786; Port Blair (South Andaman), 30.7.1993, 2 exs., 140 & 179 mm, Coll : D. V. Rao & party, Reg. No. 2784; Chidiyatapu (South Andaman), 7.8.1993, 2 exs., 156 & 166 mm, Coll : D. V. Rao, Reg. No. 2784.

Diagnostic features : D. 110-112; A. 82-86; V. 4. Depth 3.7-3.85, and head 4.3-4.5 in total length. Snout obtusely pointed, rostral hook long and extending beyond lower eye; angle of mouth not reaching beyond lower eye; lips with row of fringed tentacles, only left ventral fin present; middle lateral line with 100-114 scales; 17-18 scale rows between upper and middle lateral lines. Body tan, marbled with dark wavy anastomosing lines enclosing pale patches.

Habitat : Found on sandy bottom near shallow reef areas.

Distribution : Indo-West Pacific, from east coast of Africa, Lakshadweep, coasts of India, Andaman Is., to South China Sea and Japan.

Family SOLEIDAE

Both eyes on right side of head; margin of pre-operculum not free; mouth small, slightly inferior; dorsal fin origin above or before eyes; no spines in fins; lateral line single.

Key to Genera

- 1a Snout forming a distinct hook; caudal fin completely separate from dorsal and anal fins*Heteromycteris*
- 1b Snout not forming a hook; caudal fin separate from or joined to dorsal and anal 2
- 2a Dorsal and anal fins with a pore on each side of every fin ray; caudal completely separate from dorsal and anal fins; no pectoral fins*Pardachirus*
- 2b No pores along dorsal and anal rays; caudal separate or continuous with dorsal and anal; pectoral fins present 3
- 3a Dorsal and anal more or less continuous with caudal; ventral with 4 rays; body with blackish bars*Zebrias*
- 3b Dorsal and anal separate from caudal; ventral with 5 rays; with dark spots, specks or dark patches*Solea*

Genus *Heteromycteris* Kaup, 1858**Heteromycteris oculus* (Alcock, 1889)

1889. *Solea oculus* Alcock, *J. Asiat. Soc. Bengal*, 58(2) : 285.

1951. *Heteromycteris oculus* : Munro, *Marine and Freshwater fishes of Ceylon*, p. 262, pl. 15.

Material examined : Chidiyatapu (South Andaman), 30.7.1993, 1 ex., 57 mm, Coll : D. V. Rao, Reg. No. 2787; Port Blair (South Andaman), 30.7.1993, 2 exs., Coll : D. V. Rao, Reg. No. 2788; Mayabunder (North Andaman), 21.9.1993, 2 exs., 55 & 65 mm, Coll : D. V. Rao, Reg. No. 2789.

Diagnostic features : D. 92-98; A. 62-64; V. 5; L1. 98-99. Depth 2.74-2.76, head 3.9-4.2 in standard length. Eyes on right side; mouth strongly curved; snout hook-like; anterior nostril of blind side fringed; dorsal fin beginning on hook of snout, below upper eye; ventral fins asymmetrical. Body brownish with irregular dark spots; 8 ocelli, consisting of two crescentic dark rings, surrounded by light area along the base of dorsal and anal fins; pectoral and caudal fins with black spots.

Habitat : Found on sandy coral rubble bottom.

Distribution : Indo-West Pacific, from Andaman Is., Sri Lanka, to New Guinea.

Genus *Pardachirus* Gunther, 1862*Key to Species*

- 1a Head, body and fins covered with blackish brown dots and ring-like dark-brown marks *P. marmoratus*
- 1b Head, body and fins with dark-edged white spots and ring-like marks *P. pavoninus*

Pardachirus marmoratus (Lacepede, 1802)

1802. *Achirus marmoratus* Lacepede, *Hist. Nat. Poiss.*, 4 : 658.

1986. *Pardachirus marmoratus* : Heemstra & Gon, in Smith & Heemstra, *Smith's Sea Fishes*, p. 872, fig. 262.9.

Material examined : South Bay (Little Andaman), 23.3.1995, 1 ex., 168 mm, Coll : D. V. Rao & party, Reg. No. 2915.

Diagnostic features : D. 73; A. 53; C. 18; L1. 98. Depth 1.95-2.1 in standard length; both eyes on the right side of the head; no pectoral fin; dorsal and anal fins separate from caudal fin; snout slightly hooked. Colour pale, head, body and fins with small black dots and light-brown ring-like marks.

Habitat : Found in sandy-coral rubble bottom.

Distribution : Indian Ocean, from Red Sea, Persian Gulf, east coast of Africa, Mauritius Is., Sri Lanka and Andaman Is.

***Pardachirus pavoninus* (Lacepede, 1802)**

1802. *Achirus pavoninus* Lacepede, *Hist. Nat. Poiss.*, 4 : 658.

1929. *Pardachirus pavoninus* : Weber & de Beaufort, *Fishes of Indo-Australian Archipelago*, 5 : 165, fig. 46.

Material examined : Outram Is. (Ritchie's Archipelago), 1.3.1994, 2 exs., 73 mm, Coll : D. V. Rao & party, Reg. No. 2942.

Diagnostic features : D. 66; A. 52; V. 5; L1. 92. Eyes on right side; anterior nostril a wide tube situated above middle of mouth; no pectoral fins; lateral line straight; dorsal and anal fins separate from caudal; all fin rays branched. Body pale brown; head, body and fins covered with blackish dots and ring-like dark-brown marks.

Habitat : Found on coral rubble bottom.

Distribution : Indo-West Pacific, from Mauritius, Persian Gulf, Andaman Is., Sri Lanka to Japan, Samoa and Tonga.

Genus *Solea* Quensel, 1806

***Solea bleekeri* Boulenger, 1898**

1898. *Solea bleekeri* Boulenger, *Mar. Invest. S. Afr.*, 1 : 2.

1986. *Solea bleekeri* : Heemstra & Gon, in Smith & Heemstra, *Smith's Sea Fishes*, p. 874, pl. 134.

Material examined : Port Blair (South Andaman), 19.11.1992, 2 exs., 42 mm, Coll : D. V. Rao & party, Reg. No. 2498.

Diagnostic features : D. 61; A. 46; P. 7; V. 5; L 1.98. Depth 2.4, head 4.5 in standard length; snout slightly hooked; mouth inferior; rear nostril at front edge of lower eye; basal half of last dorsal and anal rays joined to caudal fin base. Body brown with dark spots and specks; pectoral fin of ocular side blackish; other fins brownish.

Habitat : Found in shallow sandy areas near reefs.

Distribution : Indian Ocean, from east coast of Africa to Andaman Islands.

Genus *Zebrias* Jordan & Snyder, 1900

***Zebrias quagga* (Kaup, 1958)**

1958. *Aesopia quagga* Kaup, *Archiv. Naturges.*, p. 98.

1993. *Zebrias quagga* : Rao *et al.*, *Environment & Ecology*, 11(4) : 886.

Material examined : Mayabunder (North Andaman), 15.8.1991, 1 ex., 98 mm, Coll : K. Chandra & party, Reg. No. 2368.

Diagnostic features : D. 67; A. 58; P. 6; V. 4. Depth 2.6, head 4.6 in standard length. Eye 3.4 in head, each with a short tentacle; upper eye slightly in advance of lower eye; scales ctenoid on both

sides of body; mouth curved; dorsal and anal fins confluent with caudal; right pectoral fin falciform; upper rays longer. Body brown with 10-11 cross bars, broader than the interspaces and extending onto dorsal and anal fins; caudal fin irregularly marked with yellowish-white and black; blind side yellowish-white.

Habitat : Found on coral rubble bottom.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is., Sri Lanka, Indonesia to China and Japan.

Order TETRAODONTIFORMES

Parietals, nasals, orbital bones absent; no lower ribs; gill-openings restricted to lateral slits; opercular bones and branchiostegal rays covered by hexagonal bony plates or thick skin; no sensory canals in the skull bones; branched caudal fin rays 7-10; anal fin spines absent; lateral line present or absent.

Family TRIACANTHIDAE

Body compressed, snout pointed, caudal peduncle very slender, covered by rough minute scales; first dorsal with 5 spines, 1st spine long and prominent; second dorsal with 22-26 rays; ventral of only one strong long spine; caudal fin deeply forked.

Key to Genera

- 1a Second dorsal spine more than half the length of first *Pseudotriacanthus*
- 1b Second dorsal spine less than half the length of the first *Triacanthus*

Genus *Triacanthus* Cuvier, 1817

Triacanthus biaculeatus (Bloch, 1786)

1786. *Balistes biaculeatus* Bloch, *Nat. Ausland Fische.*, 2 : 19, pl. 148.

1980. *Triacanthus biaculeatus* : Jones & Kumaran, *Fishes of Laccadive Archipelago*, p. 660, fig. 562.

Material examined : Port Blair (South Andaman), 24.8.1993, 2 exs., 260 mm, Coll : D. V. Rao & party, Reg. No. 2411.

Diagnostic features : D. V + 23; A. 21; P. 14; V. I. Depth 2.49, head 3.36 in standard length; body oblong and compressed; snout concave; second dorsal spine much smaller than half the length of first spine; narrow pelvis between ventrals; caudal peduncle depressed. Body silvery-brown on snout and back, white below; membrane between first and second dorsal spines black; dorsal, anal and pectoral fins light yellow; caudal fin yellowish-orange.

Habitat : Found on outer reef areas.

Distribution : Indo-West Pacific, from Lakshadweep, coasts of India, Andaman Is., and Sri Lanka to Japan, Philippines, New Guinea and Australia.

Genus *Pseudotriacanthus* Fraser-Brunner, 1941

Pseudotriacanthus strigilifer (Cantor, 1850)

1850. *Triacanthus strigilifer* Cantor, *J. Asiatic Soc. Bengal*, 18(2) : 1345.

1962. *Pseudotriacanthus strigilifer* : De Beaufort & Briggs, *Fishes of Indo-Australian Archipelago*, 11 : 276, fig. 73.

Material examined : Hut Bay (Little Andaman), 28.10.1991, 1 ex., 105 mm, Coll : P. T. Rajan, Reg. No. 1802; Port Blair (South Andaman), 31.7.1993, 1 ex., 47 mm, Coll : D. V. Rao & party, Reg. No. 3037.

Diagnostic features : D. V + I, 22; A. 17; P. 13; V. I. Depth 1.85 and 2.2, head 2.6 and 2.8 in standard length; snout elongate; first dorsal spine strong, longer than head length; lateral line conspicuous; caudal peduncle tapering to base of caudal; caudal fin forked; body scales with transverse ridges. Body silvery brown above, lighter below; yellowish blotches on the dorso-lateral body; fins light yellow; edges of first and second dorsal spines and membrane dusky.

Habitat : Found around coral reefs in shallow water.

Distribution : Indo-West Pacific, from Persian Gulf, coasts of India, Andaman Is. to China and Philippines.

Family MONACANTHIDAE

Size small to medium; body deep and highly compressed; skin smooth to rough; mouth terminal, teeth pointed, not fused together; first dorsal with 2 spines, the first one prominent and long and the second very small; gill opening short vertical slit; ventral fins rudimentary.

Key to Genera

- 1a Snout produced into a slender tube, turning upwards with upturned tip *Oxymonacanthus*
- 1b Snout not tubular 2
- 2a Soft dorsal and anal each with 41 or more rays; first dorsal spine slender *Aluterus*
- 2b Soft dorsal and anal with upto 39 rays; first dorsal spine strong and barbed 3
- 3a First dorsal spine over front half of the eye and received into a deep groove when depressed *Cantherhines*
- 3b First dorsal spine behind middle of eye; no groove for receiving the spine 4
- 4a Ventral spine slender and tapering; upper most ray of caudal fin a bifid filament *Paramonacanthus*
- 4b Ventral spine strong; upper most ray of caudal fin not filamentous *Monacanthus*

Genus *Aluterus* Cloquet, 1816*Aluterus scriptus* (Osbeck, 1765)

1765. *Balistes scriptus* Osbeck, *Iter. Chinensis*, 1 : 14.

1986. *Aluterus scriptus* : Hutchins, in Smith & Heemstra, *Smith's Sea Fishes*, p. 883, pl. 137.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 2 exs., 98 & 155 mm, Coll : D. V. Rao & party, Reg. No. 2491; Port Blair (South Andaman), 15.8.1992, 2 exs., 132 mm, Coll : D. V. Rao, Reg. No. 3038.

Diagnostic features : D. II + 45-46; A. 48; P. 14. Depth 3.0-3.3 head 3.38-3.4 in standard length. Body elongate and compressed; mouth small and upturned; snout long; first dorsal spine originate over eye; caudal fin long and rounded, the edge ragged. Colour olive-brown with irregular blue spots, short lines and small black spots; dorsal and anal fins light yellow; caudal fin light blue.

Habitat : Found on outer reef areas.

Distribution : All Tropical and Sub-tropical Seas.

Genus *Cantherhines* Swainson, 1839*Cantherhines pardalis* (Ruppell, 1837)

(Fig. 235)

1837. *Monacanthus pardalis* Ruppell, *Neu. Wir. Fische, Rothen Meeres.*, p. 57.

1986. *Cantherhines pardalis* : Hutchins, in Smith & Heemstra, *Smith's Sea Fishes*, p. 884, pl. 138.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 2 exs., 82 mm, Coll : D. V. Rao & party, Reg. No. 2437; 25.1.1994, 1 ex., 140 mm, Coll : D. V. Rao & party, Reg. No. 2529; Muvadera (Little Andaman), 16.3.1995, 1 ex., 165 mm, Coll : D. V. Rao & party, Reg. No. 2903.

Diagnostic features : D. II + 34-35; A. 30-31; P. 13; V. I, Depth 1.8-2.0, head 2.8-3.1 in standard length; dorsal profile of snout slightly concave; first dorsal spine origin over eye; no spines on caudal peduncle. Colour greenish with light reticulation on side of body producing a honey-comb pattern; faint narrow brownish lines on head; dorsal and anal fins orangish-yellow.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa, Lakshadweep, Andaman Is., Sri Lanka to Sagami Bay, southwards New Guinea, Australia to Hawaiian Islands.

Genus *Monacanthus* Cuvier & Oken, 1817**Monacanthus nematophorus* (Gunther, 1870)

1870. *Monacanthus nematophorus* Gunther, *Cat. Fish. Brit. Mus.*, 8 : 241.

1962. *Monacanthus nematophorus* : De Beaufort & Briggs, *Fishes of Indo-Australian Archipelago*, 11 : 326.

Material examined : Hut Blay (Little Andaman), 28.10.1991, 1 ex., 56 mm, Coll : P. T. Rajan, Reg. No. 1803.

Diagnostic features : D. II + 26; A. 27; P. 11; V. I. Depth 2.1, head 3.1 in standard length; snout slightly concave; first dorsal originating above hind margin of eye, the first spine almost equal to snout; skin with long scattered fringed filaments. Colour uniform brown; caudal with two transverse dusky bands; fins hyaline.

Habitat : Found on coral reef areas.

Distribution : Indian Ocean, from Andaman Is. to Borneo.

Genus *Oxymonacanthus* Bleeker, 1866

Oxymonacanthus longirostris (Bloch. & Sch., 1801)

1801. *Balistes longirostris* Bloch & Schneider, *Syst. Ichth.*, p. 464.

1986. *Oxymonacanthus longirostris* : Hutchins, in Smith & Heemstra, *Smith's Sea Fishes*, p. 884, pl. 138.

Material examined : Rutland (South Andaman), 18.10.1993, 3 exs., 79-93 mm, Coll : D. V. Rao & party, Reg. No. 2490; Outram Is. (Ritchie's Archipelago), 27.7.1994, 1 ex., 48 mm, Coll : D. V. Rao & party, Reg. No. 2842.

Diagnostic features : D. II + 32-34; A. 30-31; P. 11. Depth 2.68-2.78, head 2.8-2.89 in standard length; snout long, mouth upturned; dorsal and ventral profiles concave; ventral fin rudiment; scales with backwardly directed spinules. Colour bluish-green with numerous small orange spots on body; snout with three yellowish-orange bands; caudal fin with small black blotch posteriorly.

Habitat : Found on branched coral beds.

Distribution : Indo-West Pacific, from east coast of Africa to Lakshadweep, Andaman Is., Indonesia to Ryukyu Is., southwards Australia to Samoa and Gilbert Islands.

Genus *Paramonacanthus* Bleeker, 1866

Paramonacanthus curtorthynchus (Bleeker, 1855)

1855. *Monacanthus curtorthynchus* Bleeker, *Nat. Tijds. Ned. Indie.*, 8 : 430.

1992. *Paramonacanthus curtorthynchus* : Rao *et. al.*, *J. Andaman Sci. Assoc.*, 8(2) : 116.

Material examined : Hut Bay (Little Andaman), 26.10.1991, 1 ex., 77 mm, Coll : P. T. Rajan, Reg. No. 1900.

Diagnostic features : D. II + 26; A. 26; P. 11. Depth 3.0, head 2.9 in standard length; eye 3.0 in head, slightly longer than inter-orbital space; profile of snout slightly concave, mouth terminal; body with small rough scales; first dorsal spine originate above posterior half of eye; ventral fin spine

granulated and movable; caudal fin rounded, the upper most ray produced into a bifid filament. Body brown with large dark blotches below 2nd dorsal and small dark saddle on caudal peduncle; caudal fin with two distinct cross bands.

Habitat : Found around coral reef areas.

Distribution : Indo-West Pacific, from Persian Gulf, Seychelles, Andaman Is., Queensland to Japan.

Family BALISTIDAE

Body deep and compressed, covered with rough plate-like scales in series; ventral fin reduced to a rudiment; first dorsal with 3 spines, first spine strong, can be locked in an erect position by the small 2nd spine, the 3rd spine insignificant; caudal fin usually with 10 branched rays; upper jaw not protractile; gill opening a short slit above and in front of pectoral fin base.

Key to Genera

- 1a Distinct groove present before eye 2
- 1b No groove before eye 6
- 2a Caudal peduncle much longer than deep; caudal fin double emarginate***Abalistes***
- 2b Caudal peduncle much deeper than long; caudal fin rounded or truncate 3
- 3a No enlarged bony scales behind gill slit***Canthidermis***
- 3b Enlarged bony scales behind gill slit 4
- 4a Mouth slightly supra-terminal; no enlarged tubercles on posterior body scales
.....***Melichthys***
- 4b Mouth terminal; more or less enlarged tubercles on posterior body scales 5
- 5a Spines or enlarged tubercles of caudal peduncle do not extend anteriorly beyond rear part of
2nd dorsal; caudal fin rounded***Balistoides***
- 5b Spines or tubercles of caudal peduncle extend well forward on body; caudal fin truncate or
emarginate***Sufflamen***
- 6a Six large antorse spines on caudal peduncle in two longitudinal rows; numerous curved yellow-
orange bands on body***Balistapus***
- 6b Three rows of small antorse spines on caudal peduncle; no curved bands on body
.....***Rhinecanthus***

Genus *Abalistes* Jordan & Seale, 1904

Abalistes stellatus (Lacepede, 1798)

(Fig. 236)

1798. *Balistes stellatus* Lacepede, *Allg. Lit. Zeitung.*, 3 : 682.

1986. *Abalistes stellatus* : Smith & Heemstra, *Smith's Sea Fishes*, p. 877, pl. 136.

Material examined : Rutland Is. (South Andaman), 17.10.1993, 1 ex., 239 mm, Coll : D. V. Rao & party, Reg. No. 2436.

Diagnostic features : D. III + 26; A. 24; P. 15; LS. 36. Depth 2.14, head 3.0 in standard length; deep groove before eye below nostrils; mouth terminal; caudal peduncle slender, longer than deep and depressed. Colour greenish-brown above, silvery-white below, with small yellow spots on back and large spots ventrally; three whitish blotches on back.

Habitat : Found on silty bottom near reefs.

Distribution : Indo-West Pacific, from Red Sea, east coast of Africa to Maldives, Sri Lanka, Andaman Is. to Suruga Bay, southwards New Guinea, Australia to Samoa Islands.

Genus *Balistapus* Tilesius, 1820

Balistapus undulatus (Mungo park, 1797)

(Fig. 237)

1797. *Balistes undulatus* Mungo Park, *Trans. Linn. Soc., London.*, 3 : 37.

1986. *Balistapus undulatus* : Smith & Heemstra; *Smith's Sea Fishes*, p. 877, pl. 136.

Material examined : Rutland Is. (South Andaman), 25.1.1994, 3 exs., 140 mm, Coll : D. V. Rao & party, Reg. No. 2610; Outram Is. (Ritchie's Archipelago), 2.3.1994, 2 exs., 95 & 184 mm, Coll : D. V. Rao & party, Reg. No. 2812.

Diagnostic features : D. III-24-26; A. 20-22; P. 12-13; Ls. 37-39. Depth 1.79, head 2.9 in standard length; no groove before eye; two rows of strong spines curved forward on caudal peduncle; caudal fin slightly rounded. Colour dark-green with diagonal curved orange lines on head and body; a diagonal band of narrow blue and orange stripe around mouth below pectoral fin; a black area around peduncular spines; caudal fin orange-yellow.

Habitat : Found in reef caves and crevices.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Marguesas Islands.

Genus *Balistoides* Fraser-Brunner, 1935*Balistoides viridescens* (Bloch & Sch., 1801)

1801. *Balistes viridescens* Bloch & Schneider, *Syst. Ichth*, p. 477.

1986. *Balistoides viridescens* : Smith & Heemstra, *Smith's Sea Fishes*, p. 878, pl. 136.

Material examined : Chidiyatapu (South Andaman), 10.9.1990, 1 ex., 80 mm, Coll : H. S. Mehta & party, Reg. No. 1750; Mayabunder (North Andaman), 15.8.1991, 1 ex., 67 mm, Coll : K. Chandra & party, Reg. No. 1833; Outram Is. (Ritchie's Archipelago), 1.3.1994, 1 ex., 651 mm, Coll : D. V. Rao & party, Reg. No. 2819; Hut Bay (Little Andaman), 22.9.1990, 1 ex., 68 mm, Coll : K. V. Raman & party, Reg. No. 1832.

Diagnostic features : D. III + 24-26; A. 24; P. 14; LS. 31-32. Depth 1.82-1.91, head 2.8-2.9 in standard length; a deep groove before eye; scales on the body large, covered with tubercles; small farward curved spines in 4 rows on sides of caudal peduncle. Colour yellowish, paler posteriorly, the centres of scales broadly brown; a broad black zone with yellow spots extending from dorsal part of head to pectoral base; a broad black band above mouth to cheek; soft dorsal, anal and caudal fins with black borders at base and margin.

Habitat : Found on outer reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, Andaman Is. to Philippines, Australia to Gilbert Islands.

Genus *Canthidermis* Swainson, 1839*Canthidermis maculatus* (Bloch, 1786)

(Fig. 238)

1786. *Balistes maculatus* Bloch, *Nat. Ausland. Fische.*, 2 : 25.

1992. *Canthidermis maculatus* : Rao *et al.*, *J. Andaman Sci. Assoc.*, 8(2) : 115.

Material examined : Katchal Is. (Nicobar Group), 12.2.1993, 1 ex., 50 mm, Coll : D. V. Rao & party, Reg. No. 2301.

Diagnostic features : D. III + 24; A. 22; P. 14. Depth 2.55, head 3.2 in standard length; a deep groove in front of eye below nostrils; caudal peduncle not wider than deep, without spines; scales on body with small spines. Colour dark-bluish brown with white spots; grey spots on dorsal and anal fins.

Habitat : Found around reef areas and crevices.

Distribution : Indo-Pacific, from east coast of Africa to Hawaiian Islands.

Genus *Melichthys* Swainson, 1839*Melichthys indicus* Randall & Klausewitz, 1973

1973. *Melichthys indicus* Randall & Klausewitz, *Sneckenberg. Biol.*, 54(1-3) : 64, fig. 4-6.

1986. *Melichthys indicus* : Smith & Heemstra, *Smith's Sea Fishes*, p. 879, fig. 263.7.

Material examined : Katchal Is. (Nicobar Group), 12.2.1993, 1 ex., 141 mm, Coll : D. V. Rao & party, Reg. No. 2379; Rutland Is. (South Andaman), 18.10.1993, 3 exs., 220 mm, Coll : D. V. Rao & party, Reg. No. 2813.

Diagnostic features : D. III + 32-30; A. 28-30 P. 15-16; LS. 66-69. Cheeks scaly; a groove below nostrils from eye; scale rows from corner of mouth to lower end of gill slit 28-30; caudal fin slightly rounded, Colour dark-brownish black; all fins black; base of dorsal and anal fins with white line; groove on cheek violet.

Habitat : Found on outer reef areas.

Distribution : Indian Ocean, from east coast of Africa to coasts of India, Andaman Is. and Sri Lanka.

Genus *Rhinecanthus* Swainson, 1839

Key to Species

- 1a Four or 5 longitudinal rows of small antrose spines on caudal peduncle..... *R. rectangulus*
- 1b Three longitudinal rows of antrose spines on caudal peduncle..... 2
- 2a The upper two spine rows on caudal peduncle longer than lower *R. aculeatus*
- 2b The lower two spine rows on caudal peduncle longer than upper row *R. verrucosus*

Genus *Rhinecanthus aculeatus* (Linnaeus, 1758)

(Fig. 239)

1758. *Balistes aculeatus* Linnaeus, *Syst. Nat.*, ed., 10, p. 328.

1986. *Rhinecanthus aculeatus* : Smith & Heemstra, *Smith's Sea Fishes*, p. 880, pl. 137.

Material examined : Chidiyatapu (South Andaman), 31.7.1992, 2 exs., 185 & 200 mm, Coll : D. V. Rao, Reg. No. 2005; Muvadera (Little Andaman), 16.3.1995, 1 ex., 213 mm, Coll : D. V. Rao & party, Reg. No. 2907.

Diagnostic features : D. III + 25; A. 22; P.12-13; LS. 36-38. No groove before eye; three rows of small antrose spines on caudal peduncle; caudal fin rounded, the corners angular. Colour white with a large blackish area on sides of body containing four diagonal bluish-white bands from mid-side to anal fin; four blue lines across inter-orbital and three from eye to pectoral fin base; an orangish-yellow area around mouth; an yellow band continuing from mouth to below pectoral base; peduncular spines and anus black.

Habitat : Found on sandy bottom near reef area.

Distribution : Indo-West Pacific, from east coast of Africa, Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan, southwards Australia to Hawaiian Islands.

*** *Rhinecanthus rectangulus* (Bloch & Sch., 1801)**

(Fig. 240)

1801. *Balistes rectangulus* Bloch & Schneider, *Syst. Ichth.*, p. 465.

1986. *Rhinecanthus rectangulus* : Smith & Heemstra, *Smith's Sea Fishes*, p. 880, pl. 137.

Material examined : South Reef Is. (North Andaman), 23.3.1993, 3 exs., 205-212 mm, Coll : G. C. Rao & party, Reg. No. 2222; Rutland Is. (South Andaman), 25.1.1994, 2 exs., 105 mm, Coll : D. V. Rao & party, Reg. No. 2588.

Diagnostic features : D. III + 24-25; A 20-21; P.14; V. I; LS. 36-38. Depth 1.92-2.0, head 2.61-2.7 in standard length; four rows of forward curved spines on caudal peduncle; caudal fin rounded. Colour orange-brown above, head and belly bluish-white; a broad diagonal black band from eye, through pectoral base to anal fin base; four narrow blue bands with dark inter-spaces crossing inter-orbital; wedge-shaped black area posteriorly on body covering caudal peduncle, edged in golden yellow and preceded by a parallel golden-yellow band; pectoral base with red bar.

Habitat : Found in shallow reef areas

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is. to Japan, southwards Australia to Hawaiian Islands.

*** *Rhinecanthus verrucosus* (Linnaeus, 1758)**

1758. *Balistes verrucosus* Linnaeus, *Syst. Nat.*, ed. 10, p. 328.

1984. *Rhinecanthus verrucosus* : Matsura, in Masuda *et al*, *Fishes of Japanese Archipelago*, p.359, pl. 323-G.

Material examined : Rutland Is. (South Andaman), 25.1.1994, 2 exs., 127 & 132 mm, Coll : D. V. Rao & party, Reg. No. 3036.

Diagnostic features : D. III + 25; A. 21; P. 13. Depth 2.0, head 2.6 in standard length; a groove in front of eye; three rows of spines on caudal peduncle, the upper row short. Colour greyish-brown dorsally, white ventrally, with a large black patch on lower side of body, above anus; a broad brownish band with four bluish lines across inter-orbital space, continuing with three bluish lines to pectoral base; a red line from mouth to lower pectoral fin base.

Habitat : Found near sheltered reef areas in shallow water.

Distribution : Indo-West Pacific, from Mauritius, Chagos Archip., Andaman Is. to Japan and southwards Caroline and Society Islands.

Genus *Sufflamen* , Jordan, 1916

***Sufflamen chrysopterus* (Bloch. & Sch., 1801)**

1801. *Balistes chrysopterus* Bloch & Schneider, *Syst. Ichth.*, p. 466.

1992. *Sufflamen chrysopterus* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8 (2) : 116.

Material examined : Katchal is. (Nicobar Group), 12.2.1993, 1 ex., 163 mm, Coll : D. V. Rao & party, Reg. No. 2288; Rutland Is. (South Andaman), 18.10.1993, 2 exs., 2 exs. 50 mm, Coll : D. V. Rao & party, Reg. No. 2433; 25.1.1994, 3 exs., 145-165mm, Coll : D. V. Rao & party, Reg. No. 2581; Narcondam Is. (North Andaman), 14.3.1994, 2 exs., 175 mm, Coll : D. V. Rao, Reg. No. 2580.

Diagnostic features : D. III + 26; A. 24-26; P. 12-13; L1. 42-46. Depth 1.7-1.9, head 2.7-2.8 in standard length; snout profile almost straight, a groove present before eye; small spine along scale rows on posterior third of body. Colour dark-brown with greenish-yellow streak from lower edge of eye to pectoral base; lower part of head and abdomen purplish; caudal fin yellowish-brown with broad white posterior border and margin white.

Habitat : Found in sheltered lagoons in large numbers.

Distribution : Indo-West Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan, Australia to Society Islands.

Family OSTRACIIDAE

Body enclosed in a carapace of polygonal plates with gaps for mouth, gill opening, anus, caudal peduncle and fins; lips fleshy; teeth are conical to incisiform with rounded tips, in single row; gill opening a slit; upper jaw not protractile; no spines in the fins; no ventral fins.

Key to Genera

- 1a Carapace five angled with a ridge or spine on dorsal mid-line; pair of sharp horns present on anterior and posterior end of the body **Lactoria**
- 1b Carapace four angled with no ridge or spine on dorsal mid-line; no horns or spine on body **Ostracion**

Genus **Lactoria** Jordan & Fowler, 1903

Lactoria cornuta (Linnaeus, 1758)

(Fig. 241 & 242)

1758. *Ostracion cornutus* Linnaeus, *Syst. Nat.*, ed., 10, p. 331.

1992. *Lactoria cornuta* : Rao *et al*, *J Andaman Sci. Assoc.*, 8(2) : 116.

Material examined : Kamorta Is. (Nicobar Group), 14.2.1993, 1 ex., 257 mm, Coll : D. V. Rao & party, Reg. No. 2287; Rutland Is. (South Andaman), 16.10.1993, 1 ex., 125 mm, Coll : D. V. Rao & party, Reg. No. 2960.

Diagnostic features : D. 9; A. 9; P. 10; C. 9-10; head and body encased in a four ridged carapace formed by large hexagonal plates with a feebl spine on middle of back; sides of body concave, ventral surface somewhat rounded; profile of snout almost vertical; lateral and pelvic ridges rounded; frontal spine horn-like, long and slender, directed forward; pelvic ridge terminating posteriorly in a backwardly

directed spine. Body brown to green above with round bluish spots on bony plates; all fins yellow; caudal fin with scattered faint bluish spots.

Habitat : Found around weeds near reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan, and Australia to Hawaiian Islands.

Genus *Ostracion* Linnaeus, 1758

Key to Species

- 1a Body brown with white spots on carapace, caudal peduncle and caudal fin *O. meleagris*
 1b Body yellow to purplish-brown with dark edge pale blue spots on carapace *O. cubicus*

Ostracion cubicus Linnaeus, 1758

(Fig. 243)

1978. *Ostracion cubicus* Linnaeus, *Syst. Nat.*, ed., ed. 10, p. 892.

1986. *Ostracion cubicus* : Smith, in Smith & Heemstra, *Smith's Sea Fishes*, p. 892, pl. 141.

Material examined : Rutland Is. (South Andaman), 16.10.1993, 1 ex., 209 mm, Coll : D. V. Rao & party, Reg. No. 2959.

Diagnostic features : D. 9; A. 9; P. 10; C. 8. Depth 3.1, head 3.77 in standard length; carapace quadrangular; dorsal mid-line without ridge; snout not projecting; lateral and pelvic ridges rounded. Colour light brownish-yellow with white spots edged in black; dark spots on caudal peduncle.

Habitat : Found in lagoons near reef areas.

Distribution : Indo-Pacific, from east coast of Africa, Maldives, Andaman Is., Sri Lanka to Ryukyu Is., and Australia to Hawaiian Islands.

Ostracion meleagris Shaw, 1796

1796. *Ostracion meleagris* Shaw, in Shaw & Nodder, *Nat. Misc.*, p. 7., pl. 253.

1992. *Ostracion meleagris* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8(2) : 117, fig. 5.

Material examined : Hut Bay (Little Andaman), 14.9.1990, 1 ex., 110 mm, Coll : K. V. Raman & party, Reg. No. 2296.

Diagnostic features : D. 9; A. 9. P. 10; C. 10. Body ridges and back gently rounded; no horn-like spines; body four ridged; pelvic ridge more prominent. Body brownish-black with numerous white spots all over the head, body, caudal peduncle and caudal fin, other fins pale.

Habitat : Found in shallow reef areas.

Distribution : Indo-Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan, and Australia to Hawaiian Islands.

Family TETRAODONTIDAE

Capable of inflate body by swallowing air or water to form an almost spherical ball. Teeth fused into a beak-like dental plate with a median suture in each jaw; dorsal and anal fins positioned posteriorly; no ventral fins; no spines in fins; skin tough and scaleless, often with small spinules.

Key to Genera

- 1a Snout short, 1.8-3.1 in head; nasal organ in different shapes, not with single nostril 2
- 1b Snout long, below 1.8 in head; single inconspicuous nostril on either side of snout.....
..... *Canthigaster*
- 2a Nasal organs with 2 nostrils covered by a small scale 3
- 2b Nasal organs not covered by scale 4
- 3a Dorsal with 8-10, anal with 6-9 rays *Amblyrhynchotes*
- 3b Dorsal with 11-15, anal with 10-13 rays *Lagocephalus*
- 4a Nasal organs in the form of a depression with raised margin; anal fin rays 8-9
..... *Chelonodon*
- 4b Nasal organs a bifid tentacle; anal rays 9-10..... *Arothron*

Genus *Amblyrhynchotes* Dumeril, 1855

Amblyrhynchotes hypselogeneion (Bleeker, 1852)

1852. *Tetrodon hypselogeneion* Bleeker, *Nat. Tijds. Ned. Indie.*, 300.

1992. *Amblyrhynchotes hypselogeneion* : Rao et al *J. Andaman Sci. Assoc.*, 8(2) : 118.

Material examined : Hut Bay (Little Andaman), 14.8.1990, 1 ex., 55 mm, Coll : K. V. Raman & party, Reg. No. 1889; Rutland Is.(South Andaman), 18.10.199. 2 exs., 85 mm, Coll : D. V. Rao & party, Reg. No. 3040.

Diagnostic features : D. 9; A. 7; P.15. Depth 2.8, head 2.5 in standard length, eye 4.3 in head; chin prominent; nasal Papillae raised above the surface of snout; inferior boarder of eye free; spines on head and body not reaching dorsal and anal; 14 rows of spines across the belly between pectorals. Body dark brown with whitish mottled spots, lower side dull white, the two colours separated by a dark band from above gill opening to base of caudal; three broad dark bands on sides of head; all fins pale yellow.

Habitat : Found in tide pools near reef areas.

Distribution : Indo-West Pacific, from Maldives, Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Japan and from Fiji to Hawaiian Islands.

Genus *Arothron* Muller, 1841

Key to Species

- 1a Margin of caudal fin black; no markings on body except black blotch at pectoral base ***A. immaculatus***
- 1b Margin of caudal fin not black; body with different markings and patterns 2
- 2a Anus in a black area; body with small spots, blotches or reticulated 3
- 2b Anus not in a black area; dorsal side of body with prominent black blotches ***A. palembangensis***
- 3a Body with dark spots of small to medium sized 4
- 3b Body with fine lines on back and a dark reticulated pattern below pectoral or with spotted and reticulated 5
- 4a Upper part of body spotted, ventral part uniform; juveniles with wide bands and spots ***A. stellatus***
- 4b Body with irregularly spaced small dark blotches ***A. nigropunctatus***
- 5a Back, sides caudal peduncle and caudal fin with white spots, underside with dark longitudinal bands ***A. reticularis***
- 5b Head, back, caudal peduncle and lower sides with dark reticulations ***A. mappa***

***Arothron immaculatus* (Bloch & Sch., 1801)**

(Fig. 244)

1801. *Tetrodon immaculatus* Bloch & Schneider, *Syst. Ichth.*, p. 507.

1986. *Arothron immaculatus* : Smith & Heemstra, *Smith's Sea Fishes*, p. 896, pl. 142.

Material examined : Chidiyatapu (South Andaman), 25.10.1990, 1 ex., 95mm, Coll : K. V. Raman & party, Reg. No. 1837; Hut Bay (Little Andaman), 2.9.1990, 4 exs., 40-100 mm, Coll : K. V. Raman & party, Reg. No. 1834 & 1836; Katchal Is. (Nicobar Group), 13.2.1993, 1 ex., Coll : D. V. Rao & party, Reg. No. 2278.

Diagnostic features : D. 10; A. 9; P.16. Body spiny except lips and caudal peduncle; caudal fin rounded. Colour dark brown above, lighter below; upper and lower edges and margin of caudal fin black; black blotch at pectoral base.

Habitat : Found in shallow silty-sand areas near reefs.

Distribution : Indo-West Pacific, from east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Ryukyu Is., and Marshall to Samoa Islands.

***Arothron mappa* (Lesson, 1827)**

(Fig. 245)

1827. *Tetrodon mappa* Lesson, *Duperrey Voy. Zool.* p. 102, pl. 5.

1992. *Arothron mappa* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8(2) : 117, fig. 6.

Material examined : Havelock Is. (Ritchie's Archipelago), 28.2.1994, 1 ex., 360 mm, Coll : D. V. Rao & party, Reg. No. 2961.

Diagnostic features : D. 11; A. 11; P. 19. Body heavy and broad; small bifid, solid tentacle before eye; head and body covered with spinules, except for region around mouth, base of fins and caudal peduncle; caudal peduncle depressed. Colour yellowish-grey with highly irregular black bands may forming a reticulum; a large black blotch around gill opening and pectoral fin base; lower third of body white with faint yellow reticulations and small irregular black blotches below pectoral fin; irregular black lines radiating from eye; black area around anus.

Habitat : Found on coral reefs in shallow areas.

Distribution : Indo-West Pacific, from east coast of Africa, Andaman Is., Indonesia to Japan and Australia to Samoa Is.

***Arothron nigropunctatus* (Bloch & Sch., 1801)**

(Fig. 246)

1801. *Tetrodon nigropunctatus* Bloch & Schneider, *Syst. Ichth.*, p. 507.

1986. *Arothron nigropunctatus* : Smith & Heemstra *Smith's Sea Fishes.*, p. 897, pl. 143.

Material examined : Rayhill Is. (North Andaman), 18. 3.1993, 1 ex., 152 mm, Coll : G. C. Rao & party, Reg. No. 2259; North Reef Is. (North Andaman), 26.3.1993, 2 exs., 230 mm, Coll : G. C. Rao & party, Reg. No. 2226.

Diagnostic features : D. 10; A. 10; P. 18. Head and body covered with spinules except middle of back, around mouth, sides of caudal peduncle; caudal fin slightly rounded. Colour brownish above, pale below with widely scattered black spots of different size; snout and anus black.

Habitat : Found around coral reefs.

Distribution : Indo-West Pacific, from Red Sea , east cost of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Ryukyu Is., and Australia to Society Islands.

***Arothron palembangensis* (Bleeker, 1852)**

1852. *Tetrodon palembangensis* Bleeker, *Nat. Tijds. Ned. Indie.*, 3 : 605.

1992. *Arothron palembangensis* : Rao *et al*, *J. Andaman Sci. Assoc.*, 8 (2) : 117, fig. 2.

Material examined : Kamorta Is. (Nicobar Group), 11.11.1989, 2 exs., 60 mm, Coll : H. S. Mehta & party Reg. No. 1898.

Diagnostic features : D. 13; A. 11; P. 21. Head 2.2 in standard length eye 4.3 in head 1.6 in snout. Anterior border of eye in level with mouth; inter-orbital space flat; nasal organ a tube with single nostril at its end; body covered with small spines except mouth and caudal peduncle; lateral line forming ring around eye. Body light brown, whitish on sides and belly; a narrow blotch on inter-orbital space; large blotches on head and on back before dorsal; all the other small blotches encircled by light brown lines forming reticulations; all fins yellowish except caudal dusky.

Habitat : Found in creeks.

Distribution : Indian Ocean, from Andaman Is. to Thailand.

***Arothron reticularis* (Bloch & Sch., 1785)**

1785. *Tetrodon testudineus* Bloch & Schneider Syst. Ichth., p. 502.

1952. *Arothron reticularis* : Munro, *Marine and Freshwater Fishes of Ceylon*, p. 284, pl. 55, fig. 829.

Material examined : Chidiyatapu (South Andaman), 31.10.1989, 1 ex., 116 mm, Coll : H. S. Mehta & party, Reg. No. 1438.

Diagnostic features : D. 10; A. 10; P.16. Nostrils with 2 tentacles on each side; body covered with small spines except around mouth; dorsal, and caudal fins rounded. Body brownish above, white below; back, sides, caudal peduncle and caudal fin with white spots, belly with dark longitudinal bands and ascending to cheeks and snout.

Habitat : Found around reef areas.

Distribution : Indo-West Pacific, from coasts of India, Andaman Is, Sri Lanka to China Sea and Ryukyu Is., Queensland and Fiji.

****Arothron stellatus* (Bloch & Sch. 1801)**

1801. *Tetrodon stellatus* Bloch & Schneider, Syst. Nat., P. 503.

1986. *Arothron stellatus* : Smith & Heemstra, *Smith's Sea Fishes*, p. 801, fig. 268.8.

Material examined : Rutland Is. (South Andaman), 18.10.1993, 2 exs., 109 mm, Coll : D. V. Rao & party, Reg. No. 2492.

Diagnostic features : D. 11; A. 11; P. 17. Small spinules on head and body, except top of snout, base of fins and sides of caudal fin; caudal fin slightly rounded. Colour whitish with small black spots on head, body and median fins; abdomen with few broad irregular black bands.

Habitat : Found around outer reefs areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman is., Sri Lanka to Japan and Australia to Hawaiian Islands.

Genus *Canthigaster*, Swainson, 1839

Key to Species

- 1a Body with orange-red and blue spots and lines; caudal fin without spots or lines
..... *C. bennetti*
- 1b Body with dark-edged blue spots and small lines; caudal fin with blue spots *C. solandri*

Canthigaster bennetti (Bleeker, 1854)

1854. *Tropidichthys bennetti* Bleeker, *Nat. Tijd. Ned. Indie.*, 6 : 504.

1986. *Canthigaster bennetti* : Smith & Heemstra, *Smith's Sea Fishes*, p. 808, pl. 143.

Material examined : Curlew's Is. (North Andaman), 10.1.1992, 2 exs. 80 & 90 mm, Coll : D. V. Rao, Reg. 1890.

Diagnostic features : D. 10; A. 9; P. 15. Small spines on head and body; caudal peduncle longer than deep. Colour greenish-brown above with numerous orange-yellow spots and small blue spots and lines; lower sides white with red and blue spots; several blue lines radiate from eye and behind mouth; a blue edged ocellus at base of dorsal fin; a bluish band ventrally from chin to anus.

Habitat : Found on sandy bottom adjacent to coral reefs.

Distribution : Indo-West Pacific, from east coast of Africa to Lakshadweep and Andaman Is. to Philippines, Australia and south Pacific Islands.

Canthigaster solandri (Richardson, 1844)

1844. *Tetrodon solandri* Richardson, *Ichthyology*, p. 125, pl. 57.

1986. *Canthigaster solandri* : Smith & Heemstra, *Smith's Sea Fishes*, p. 809, pl. 143.

Material examined : Rutland Is. (South Andaman), 18.10.1983, 2 exs., 81 mm, Coll : D. V. Rao & party, Reg. No. 2765.

Diagnostic features : D. 9; A. 9. P. 16. Caudal peduncle deeper than long; dorsal ridge well developed. Colour orange-brown, lighter on abdomen with numerous small dark-edged pale blue spots on head, body and caudal fin, dark edged blue lines radiating from eye; a blue edged black spot at base of dorsal fin; dorsal, anal and pectoral fins light yellow.

Habitat : Found around rich coral reef areas.

Distribution : Indo-Pacific, from Red Sea, east coast of Africa to Lakshadweep, coasts of India, Andaman Is., Sri Lanka to Hawaiian Islands.

Genus *Chelonodon* Muller, 1839*Chelonodon patoca* (Hamilton, 1822)

1822. *Tetrodon patoca* Hamilton, in Ham. Buch *Fishes of Ganges*, p. 7.

1962. *Chelonodon patoca* : De Beaufort & Briggs, *Fishes of Indo-Australian Archipelago*, 11 : 390, fig. 86.

Material examined : Hut Bay (Little Andaman), 19.9.1990, 11 exs., 35-130 mm, Coll : K. V. Raman & party, Reg. No. 1835 & 1838; Mayabunder (North Andaman), 18.3.1993, 1 ex., 100 mm, Coll : D. V. Rao, Reg. No. 2958; Port Blair (South Andaman), 31.7.1993, 4 exs., 85 mm, Coll : D. V. Rao & party, Reg. No. 2957; Rutland Is. (South Andaman), 25.1.1994, 2 exs., 117 mm, Coll : D. V. Rao & party, Reg. No. 2602.

Diagnostic features : D. 10; A. 8; P. 16. Spinules on back from behind inter-orbital to dorsal fin, on throat and abdomen; nasal organ a depression with a low rim with flaps. Colour brownish-grey on back with large round to ovate white spots; ventral part of body white; a broad yellow streak on lower side; three narrow dark bars on back.

Habitat : Found in inshore reef areas.

Distribution : Indo-West Pacific, from Persian Gulf, coasts of India, Andaman Is., Sri Lanka to Ryukyu Is. and Australia to Gilbert Island.

Genus *Lagocephalus* Swainson, 1830*Key to species*

- 1a Spinules on dorsal surface of body extend to caudal *L. scleratus*
- 1b Spinules on dorsal surface of body extend half way from inter-orbital region to dorsal fin origin *L. guentheri*

Lagocephalus scleratus (Forster, 1788)

(Fig. 248)

1788. *Tetrodon scleratus* Forster, in Gmelin *Linn. Syst. Nat.*, p. 1444.

1992 *Lagocephalus scleratus* : Rao et al. *J Andaman Sci. Assoc.*, 8(2) : 118, fig. 3.

Material examined : Hut Bay (Little Andaman), 14.9.1990, 4 exs., 130-140 mm, Coll : K. V. Raman & party, Reg. No. 1896.

Diagnostic features : D. 10; A. 8; P. 16. Head 3.4 in standard length; eye 3.3 in head, 1.3 in snout; inter orbital space flat, eye with free orbital rim; two lateral lines, the lower is a raised ridge running from chin in a straight line to lower base of caudal; small spines on body except around the mouth and caudal peduncle. Colour brownish-green with dark spots; a brown ring around eye; a broad silvery band from mouth to middle of caudal peduncle; belly white; a silvery blotch before eye; pectoral base and inside of gill opening black.

Habitat : Found on sandy-rubble bottom near coral reef areas.

Distribution : Indo-West Pacific, from east coast of Africa to coasts of India, Andaman Is., Sri Lanka to Japan and Australia to Tahiti Islands.

***Lagocephalus guentheri* Ribeiro, 1915**

(Fig. 247)

1915. *Lagocephalus guentheri* Ribeiro, *Arch Mus. Nac. Rio de Janeiro.*, 17 : 5.

1992. *Lagocephalus guentheri* Rao *et al*, *J Andaman Sci. Assoc.*, 8(2) : 118.

Material examined : port Blair (South Andaman), 19.11.1992, 10 exs., 52-72mm, Coll : D. V. Rao & party, Reg. No. 2339.

Diagnostic features : D. 12-13; A. 13; P. 16-18. Depth 2.7-2.9, head 2.5-2.9 in standard length, eye 2.7-2.9 in head, 1.15-1.25 in snout. Eye above level of mouth with fully developed orbital rim; a patch of spinules on dorsal surface extend only from inter-orbital region, V-shaped posteriorly, ending well before dorsal origin, almost to the level of middle of pectorals; underside of head and belly to before anal spiny; rest of the body naked; caudal peduncle compressed. Body greenish-black dorsally, sides silvery and belly whitish; dorsal fin dusky, anal fin white; caudal fin yellowish, margin dark, the tip of lobes white; a pair of dark narrow bands across dorsum just behind eyes and another band half way to dorsal fin; black blotch at caudal fin base.

Habitat : Found on sandy-rubble bottom near reefs.

Distribution : Indian Ocean, from east coast of Africa to Andaman Islands.

Family DIODONTIDAE

Body rounded, inflatable; no scales; Scales modified into spines; dorsal and anal fins rounded, situated back on body; no spines in fins; ventral fins absent; teeth fused into a beak-like plate in each jaw; lateral line not conspicuous; gill-opening a small vertical slit before pectoral.

Genus *Diodon* Linnaeus, 1758

Key to Species

- 1a One or more spines on dorsal side of caudal peduncle; sides of body and fins with small black spots ***D. hystrix***
- 1b No spines on caudal peduncle; body with large dorsal and lateral blotches. 2
- 2a Small down-ward pointing spine below front edge of eye; 17-22 spines from lower jaw to anus; no inter-orbital blotch ***D. liturosus***
- 2b No spine below front edge of eye; 12-15 spines from lower jaw to anus; inter-orbital blotch present ***D. holocanthus***

***Diodon holocanthus* Linnaeus, 1758**

(Fig. 249)

1758. *Diodon holocanthus* Linnaeus, *Syst. Nat.*, p. 335.1992. *Diodon holocanthus* : Rao *et al* *J. Andaman Sci. Assoc.*, 8(2) : 119.

Material examined : Chidiyatapu (South Andaman), 21.11.1985, 1 ex., 430 mm, Coll : M. Sil & party, Reg. No. 1354; Port Mout (South Andaman), 26.4.1991, 1 ex., 381 mm, Coll : Kamla Devi & party, Reg. No. 1996.

Diagnostic features : D. 14; A. 14; P. 22. Head 2.6 in standard length; eye 3.2 in head, 1.8 in snout; body covered with strong long movable two rooted spines, posterior part of body with three rooted spines; no spines on caudal peduncle; a small fleshy tentacle above eye; two small barbels on chin. Body uniform brown above, whitish below; dorsal side of body with small black spots; a large black blotch runs from eye to cheek; a post-ocular band continued on sides of head interrupted behind eye, another band across middle of back; a large oval brown blotch above each pectoral fin and another around dorsal fin base; fins without spots

Habitat : Found in shallow reef areas.

Distribution : Indo-Pacific, from east coast of Africa to coasts of India, Andaman Is. to Japan and Australia to Tuamotu Islands.

***Diodon hystrix* Linnaeus, 1758**

(Fig. 250)

1758. *Diodon hystrix* Linnaeus *Hist. Nat.*, ed. 10, 1 : 335.1986. *Diodon hystrix* : Leis, in Smith & Heemstra, *Smith's Sea Fishes*, p. 906, fig. 298.6.

Material examined : Chidiyatapu (South Andaman), 23.8.1987, 1 ex., 320 mm. Coll : H. S. Mehta & party, Reg. No. 2006.

Diagnostic features : D. 16; P. 23. No tentacles on head; 18 spines in a row from top of snout to dorsal fin; spines on head shorter, spines on body long; two spines dorsally on caudal peduncle; no barbels on chin. Body light grey-brown dorsally with small black spots shading to white ventrally; fins yellowish with black spots.

Habitat : Found around coral reefs in lagoons.

Distribution : Circumtropical.

*** *Diodon liturosus* Shaw, 1804**

(Fig. 251)

1804. *Diodon liturosus* Shaw, *General Zoology*, 2 : 436.1986. *Diodon liturosus* : Leis, in Smith & Heemstra, *Smith's Sea Fishes*, p. 906, fig. 269.7.

Material examined : Rutland Is. (South Andaman), 25.1.1994, 2 exs., 211 mm, Coll : D. V. Rao & party, Reg. No. 2681; Outram Is., (Ritchie's Archipelago), 1.3.1994, 1 ex., 192 mm, Coll : D. V. Rao & party, Reg. No. 3041.

Diagnostic features : D. 14-15; A. 15-16; P. 22-24. Spines on head shorter than the spines behind pectoral fins; a sharp downward pointing spine below front of eye; caudal peduncle without spines. Colour brown with black spots on upper part of body; large white edged blotches across back and sides, one above and passing through eye, others on rear of head, in front of gill opening, above each pectoral fin, middle of back and around base of dorsal fin; all fins yellow.

Habitat : Found around reef areas in shallow water.

Distribution : Indo-West Pacific, from east coast of Africa, coasts of India, Andaman Is. to Japan and southwards Australia.

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ANNEXURE-I

Systematic list of fish species recorded from Andaman & Nicobar Islands which are not included in the text.

Class CHONDRICHTHYES

Order LAMNIFORMES

Family SCYLIORHINIDAE

Apristurus investigatoris (Misra)

Halaelurus hispidus (Alcock)

Family PROSCYLLIDAE

Eridacnis radcliffei Smith

Family CARCHARHINIDAE

Carcharhinus dussumieri (Muller & Henle)

Carcharhinus macroti (Muller & Henle)

Carcharhinus sealei (Pietschmann)

Carcharhinus sorrah (Valenciennes)

Carcharias wheeleri Garrick

Loxodon macrorhinus Muller & Henle

Prionace glauca (Linnaeus)

Rhizoprionodon oligolinx Springer

Family SPHYRNIDAE

Eusphyra blochii (Cuvier)

Order RAJIFORMES

Family PRISTIDAE

Anoxypristis cuspidatus (Latham)

Pristis zijsron Bleeker

Pristis microdon Latham

Family RHINOBATIDAE

Rhynchobatus djiddensis (Forsskal)

Family RAJIDAE

Cruciraja andamanica (Lloyd)

Class OSTEICHTHYES

Order ELOPIFORMES

Family ELOPIDAE

Elops machnata (Forsskal)

Order NOTACANTHIFORMES

Family HALOSAURIDAE

Halosaurus carnicauda (Alcock)

Order ANGUILLIFORMES

Family MURAENIDAE

Echidna nigra (Day)*Gymnothorax boschi* (Bleeker)*Gymnothorax favagineus* (Bloch & Sch.)*Gymnothorax hepaticus* (Ruppell)*Lycondontis tile* (Ham.-Buch)*Siderea thrysoidea* (Richardson)*Thyrsoides macrura* (Bleeker)*Uropterygius macrocephalus* (Bleeker)

Family NEMICHTHYIDAE

Avocettina infans (Gunther)*Nemichthys scolopaceus* (Richardson)

Family OPHICHTHIDAE

Muraenichthys shultzei Bleeker*Myrichthys maculosus* (Cuvier)*Ophichthys apicalis* (Bennett)*Pisodonophis cancrivorus* (Richardson)

Family COLOCONGRIDAE

Coloconger raniceps Alcock

Family CONGRIDAE

Ariosoma macrocerus (Alcock)

Congresox talabon (Cuvier)

Gorgasia maculata Klausewitz & Eidl-eibesfeldt

Heteroconger hassi nicobarensis (Klausewitz & Eidl-eibesfeldt)

Heteroconger obscura (Klausewitz & Eidl-eibesfeldt)

Family MURAENESOCIDAE

Gavialiceps taeniola Alcock

Family SERRIVOMERIDAE

Serrivomer microps (Alcock)

Order CLUPEIFORMES

Family CLUPEIDAE

Amblygaster leiogaster (Valenciennes)

Anodontostoma selangkat (Bleeker)

Anodontostoma thailandiae (Wongratana)

Escualosa thoracata (Valenciennes)

Gonialosa manmina (Ham.-Buch.)

Herklotsichthys quadrimaculatus (Ruppell)

Sardinella fimbriata (Valenciennes)

Sardinella gibbosa (Bleeker)

Sardinella longiceps (Valenciennes)

Nematalosa nasus (Bloch)

Family PRISTIGASTERIDAE

Ilisha filigera (Valenciennes)

Ilisha melastoma (Schneider)

Opisthopterus tardoore (Cuvier)

Pellona dayi Wongratana

Family ENGRAULIDIDAE

Coilia ramcarati (Ham.-Buch.)*Encrasicholina heteroloba* (Ruppell)*Setipinna phasa* (Ham.-Buch.)*Setipinna tenuifilis* Valenciennes*Stolephorus indicus* (Van-Hasselt)*Stolephorus waitei* Jordan & seale*Thryssa malabarica* (Bloch)

Order CYPRINIFORMES

Family CYPRINIDAE

Catla catla (Ham.-Buch.)*Cirrhinus mrigala* (Ham.-Buch.)*Esomus danricus* (Ham.-Buch.)*Labeo rohita* (Ham.-Buch.)

Order SILURIFORMES

Family ARIIDAE

Arius macronotacanthus Bleeker*Arius sumatranus* (Bennett)*Arius thalassinus* (Ruppell)*Ketengus typus* Bleeker

Family PLOTOSIDAE

Plotosus canius Ham.-Buch.

Order SALMONIFORMES

Family ALEPOCEPHALIDAE

Alepocephalus longiceps Llyod*Bathytroctes microlepis* Gunther*Rouleina squamilatera* (Alcock)

Order STOMIIFORMES

Family GONOSTOMATIDAE

Cyclothone microdon (Gunther)

Family STERNOPTYCHIDAE

Polyipnus spinosus Gunther

Family PHOTICHTHYIDAE

Yarrella corythaeolum (Alcock)

Family CHAULIODONTIDAE

Chauliodus sloani Schneider

Family MALACOSTEIDAE

Malacosteus niger Ayres

Photostomias guernei Collett

Order AULOPIIFORMES

Family CHLOROPHTHALMIDAE

Bathypterois guentheri Alcock

Ipnotops agassizii Garman

Family SYNODONTIDAE

Saurida nebulosa Valenciennes

Saurida micropectoralis Shindo & Yamada

Synodus englemani Schultz

Synodus hoshinonis Tanaka

Synodus oculus Cressey

Family EVERMANNELLIDAE

Evermannella atratus (Alcock)

Order MYCTOPHIFORMES

Family NEOSCOPELIDAE

Neoscopelus macrolepidotus Johnson

Family MYCTOPHIDAE

Benthosema pterotum (Alcock)

Diaphus coeruleus Klunzinger

Diaphus diademophilus

Diaphus malayanus Weber

Diaphus nielsenii Nafpaktitis

Diaphus regani Taning

Diaphus suborbitalis Weber

Order GADIFORMES

Family MORIDAE

Physiculus roseus Alcock

Family BREGMACEROTIDAE

Bregmaceros macclellandii Thompson

Family MACROURIDAE

Bathygadus furvescens Alcock

Coelorinchus parallelus (Gunther)

Coelorinchus quadricristatus (Woodmason-Alcock)

Coryphaenoides macrolophus (Alcock)

Gadomus multifilis (Gunther)

Hymenocephalus heterolepis (Alcock)

Malacocephalus laevis (Lowe)

Nezumia brevirostris (Alcock)

Nezumia investigatoris (Alcock)

Nezumia semiquincunciata (Alcock)

Ventrifossa petersoni (Alcock)

Order OPHIDIIFORMES

Family OPHIDIIDAE

Brotulina piger (Alcock)

Dicrolene intronigra Goode & Bean

Dicrolene multifilis (Alcock)

Dicrolene nigricaudis (Woodmasson & Alcock)

Diplacanthopoma brachysoma (Gunther)

Diplacanthopoma raniceps Alcock

Glyptophidium argenteum Alcock

Hepthocara simum Alcock

Lamprogrammus niger Alcock

Monomitopus nigripinnis (Alcock)

Neobythites macrops Gunther

Spottobrotula mahodadi Cohen & Neilsen

Family APHYONIDAE

Barathronus diaphanus Brauer

Order LOPHIIFORMES

Family LOPHIIDAE

Lophiomus setigerus (Vahl)

Family OGCOCEPHALIDAE

Halicmetus ruber Alcock

Halieutaea coccinea Alcock

Halieutaea nigra Alcock

Halieutopsis micropus (Alcock)

Halieutopsis nasutus (Alcock)

Malthopsis luteus Alcock

Malthopsis mitrigera Gilbert & Cramer

Order CYPRINODONTIFORMES

Family EXOCOETIDAE

Cypselurus starksi Abe

Exocoetus volitans Linnaeus

Family HEMIRAMPHIDAE

Hemiramphus lutei Valenciennes

Hyporhamphus limbatus (Valenciennes)

Zenarchopterus pappenheimi Mohr

Family BELONIDAE

Ablennes hians (Valenciennes)

Family ORYZIIDAE

Oryzias melastigma

Order ATHERINIFORMES

Family ATHERINIDAE

Atherinomorus endrachtensis (Cuv. & Gaimard)

Hypoatherina temminckii (Bleeker)

Order LAMPRIFORMES

Family ATELEOPODIDAE

Ateleopus indicus Alcock

Order BERYCIFORMES

Family MONOCENTRIDAE

Monocentris japonicus (Houttuyn)

Family HOLOCENTRIDAE

Holocentrus lacteoguttatus Cuvier

Ostichthys japonicus (Cuvier)

Family POLYMIXIIDAE

Polymixia japonicus Gunther

Order PEGASIFORMES

Family PEGASIDAE

Eurypegusus draconis (Linnaeus)

Order SYNGNATHIFORMES

Family SYNGNATHIDAE

Acentronura gracillima (Schlegel)

Bhanotia fasciolata (Dumeril)

Halicampus koilomatodon (Bleeker)

Hippocampus horai Duncker

Hippocampus hystrix Koup

Hippocampus trimaculatus Leach

Microphis brachyurus (Bleeker)

Microphis insularis (Hora)

Order SCORPAENIFORMES

Family SCORPAENIDAE

Ablabys macracanthus (Bleeker)

Ablabys taenianotus (Cuvier)

Scorpaena neglecta Temnick & Schlegel

Scorpaenodes smithi Eschmeyer & Rao

Scorpaenopsis venosa (Cuvier)

Sebastapistes rhodochrous (Gunther)

Seterches guentheri Johnson

Seterches longimanus (Alcock)

Family SYNANCEIIDAE

Inimicus caledonicus (Sauvage)*Synanceia alula* Eschmeyer & Rao

Family APLOCTINIDAE

Cocotropus echinatus (Cantor)*Cocotropus steinitzi* Eschmeyer & Dor*Xenoploactis cautes* Poss & Eschmeyer

Family TRIGILIDAE

Lepidotrigia riggsi Richardson & Saksena*Peristedion serrulatum* (Alcock)*Satyrichthys investigatoris* (Alcock)

Family PLATYCEPHALIDAE

Grammoplites scaber Linnaeus

Order PERCIFORMES

Family AMBASSIDAE

Ambassis buton Popta*Ambassis commersoni* Cuvier*Ambassis dussumieri* Cuvier*Ambassis gymnocephalus* (Lacepede)*Ambassis kosii* Bleeker*Ambassis nalua* (Ham.-Buch.)

Family SERRANIDAE

Centrogenys vaigiensis (Cuv. & Gaimard)*Cephalopholis leopardus* (Lacepede)*Epinephelus bleekeri* (Valliant)*Epinephelus chlorostigma* (Valenciennes)*Epinephelus fario* (Thunberg)

Epinephelus hexagonatus (Schneider)

Epinephelus megachir (Richardson)

Epinephelus meliaris (Valenciennes)

Epinephelus tauvina (Forsskal)

Family GRAMMISTIDAE

Aulacocephalus temmincki Bleeker

Family PSEUDOCHROMIDAE

Pseudochromis fuscus Muller & Troschel

Pseudochromis xanthochir Bleeker

Family PLESIOPIDAE

Plesiops melas Bleeker

Plesiops oxycephalus Bleeker

Family TERAPONIDAE

Pelates quadrilineatus (Bloch)

Terapon puta (Cuvier)

Family KUHLIIDAE

Kuhlia rupestris (Lacepede)

Kuhlia mugil (Schneider)

Family PRIACANTHIDAE

Priacanthus blochii Bleeker

Pristigenys nipponia (Cuvier)

Family APOGONIDAE

Apogon chrysotaenia (Bleeker)

Apogon fragilis Smith

Apogon kallopterus (Bleeker)

Apogon lateralis Valenciennes

Apogon sangiensis Bleeker

Apogonichthys auritus (Valenciennes)

Apogonichthys perdix Bleeker

Apogonichthys poecilopterus (Valenciennes)

Lepidamia multitaeniata (Valenciennes)

Ostorhynchus novemfasciatus (Valenciennes)

Family SILLAGINIDAE

Sillago (Parasillago) maculatus Jordan & Evermann

Sillago (Sillaginopodys) cho Bleeker

Family MALACANTHIDAE

Malacanthus brevirostris (Guiche)

Malacanthus hoedtii Bleeker

Malacanthus latovittatus (Lacepede)

Family ECHENEIDAE

Remora remora (Linnaeus)

Family CARANGIDAE

Alepes melanoptera Swainson

Carangoides chrysophrys (Cuvier)

Carangoides fulvoguttatus (Forsskal)

Carangoides plagiotaenia Bleeker

Carangoides gymnostethus (Cuvier)

Carangoides talamparoides Bleeker

Caranx ignobilis (Forsskal)

Decapterus maruadsi (Temmnick & Schlegel)

Decapterus russelli (Ruppell)

Parastromateus niger (Bloch)

Seriola rivoliana Valenciennes

Family CORYPHAENIDAE

Coryphaena hippurus Linnaeus

Family LEIOGNATHIDAE

Gazza achlamys Jordan & Starks

Leiognathus berbis (Valenciennes)

Leiognathus blochii (Valenciennes)

Leiognathus daura (Cuvier)

Leiognathus decorus (de Vis)

Leiognathus dussumieri (Valenciennes)

Leiognathus jonesi James

Macilentichthys indicus (Singh & Talwar)

Family LUTJANIDAE

Lipocheilus carnolabrum (Chan)

Lutjanus bengalensis (Bloch)

Lutjanus bouton (Lacepede)

Lutjanus carponotatus (Richardson)

Lutjanus guilcheri Forurmanoir

Paracaesio sordidus Abe & Shinohara

Paracaesio xanthura (Bleeker)

Pinjalo pinjalo (Bleeker)

Pristipomoides multidens (Day)

Pristipomoides sieboldii (Bleeker)

Pristipomoides typus Bleeker

Family LOBOTIDAE

Lobotes surinamensis (Bloch)

Family GERREIDAE

Gerres acinaces Bleeker

Gerres lucidus Cuvier

Gerromorpha setifer Ham.-Buch.

Family HAEMULIDAE

- Diagramma pictus* (Thunberg)
Plectorhinchus diagrammus (Linnaeus)
Plectorhinchus rayi (Menon & Talwar)
Pomadasys argenteus (Forsskal)
Pomadasys furcatus (Schneider)

Family LETHRINIDAE

- Gymnocranius griseus* (Schlegel)
Gymnocranius grandoculis (Valenciennes)
Lethrinus conchyliatus (Smith)
Lethrinus erythracanthus Valenciennes
Lethrinus erythropterus Valenciennes
Lethrinus lentjan (Lacepede)
Lethrinus rubrioperculatus Sato
Lethrinus variegatus Ehrenberg
Monotaxis grandoculis (Forsskal)

Family NEMIPTERIDAE

- Nemipterus hexodon* (Cuv. & Gaimard)
Nemipterus mesoprion (Bleeker)
Nemipterus nemurus (Bleeker)
Nemipterus randalli Russell
Scolopsis frenatus (Cuvier)
Scolopsis ghanam (Forsskal)
Scolopsis xenochrous Gunther

Family SCIAENIDAE

- Johnius balangerii* (Cuvier)
Johnius carouna (Cuvier)
Johnieops dussumieri (Cuvier)

Family MULLIDAE

Mulloides vanicolensis (Valenciennes)

Parupeneus rubescens (Lacepede)

Upeneus luzonius (Jordamn & Seale)

Family PEMPHERIDIDAE

Pempheris moluca Cuvier

Family BATHYCLUPEIDAE

Bathyclupea hoskynii Alcock

Family KYPHOSIDAE

Kyphosus vaigiensis (Cuv. & Gaimard)

Family EPHIPPIDIDAE

Ephippus orbis (Bloch)

Tripterodon orbis Playfair

Family POMACANTHIDAE

Centropyge eibli Kalauswitz

Pomacanthus xanthometopon (Bleeker)

Family POMACENTRIDAE

Abudefduf cyaneus (Cuv. & Gaimard)

Abudefduf notatus (Day)

Abudefduf sexatilis (Linnaeus)

Amblyglyphidodon leucogaster (Bleeker)

Amphiprion frenatus Brevoort

Amphiprion polymnus (Linnaeus)

Amphiprion sebae Bleeker

Cheiloprion labiatus (Day)

Chrysiptera glauca (Cuvier)

Neopomacentrus cochinensis (Day)

Pomacentrus bifasciata Bleeker

Pomacentrus prosopotaenia Bleeker

Pomacentrus trimaculatus Cuvier

Stegastes livides (Bloch & Schneider)

Family MUGILIDAE

Liza carinata (Valenciennes)

Liza macrolepis (Smith)

Liza parsia (Ham.-Buch.)

Liza subviridis (Valenciennes)

Liza tade (Forsskal)

Oedalechilus labiosus (Valenciennes)

Valamugil seheli (Forsskal)

Family SPHYRAENIDAE

Sphyraena chrysotaenea Klunzinger

Sphyraena forsteri Cuvier

Sphyraena jello Cuvier

Sphyraena putamiae (Jordan & Seale)

Sphyraena genie Klunzinger

Family POLYNEMIDAE

Polydactylus kuru (Bleeker)

Polydactylus microstoma (Bleeker)

Family LABRIDAE

Anampses caeruleopunctatus Ruppell

Choerodon robustus (Gunther)

Halichoeres hyrtlui (Bleeker)

Halichoeres kawarin (Bleeker)

Halichoeres leparensis (Bleeker)

Halichoeres notopsis (Bleeker)

Macropharyngodon meleagris (Valenciennes)

Pseudodax moluccanus (Valenciennes)

Thalassoma herbraicum (Lacepede)

Thalassoma purpureum Forsskal

Thalassoma quinquevittatum (Lay & Bennett)

Family SCARIDAE

Calatomus viridescens (Ruppell)

Scarus enneacanthus Lacepede

Scarus gibbus Ruppell

Scarus globiceps Valenciennes

Scarus japonensis (Bloch)

Scarus octodon (Bleeker)

Scarus prasiognathos Valenciennes

Scarus rivulatus Valenciennes

Scarus sordidus Forsskal

Family OPISTOGNATHIDAE

Opistognathus annulata (Eibl-Eibesfeldt & Kalausewitz)

Opistognathus rosebergi (Bleeker)

Family CHIASMODONTIDAE

Dysalotus alcocki Mac Gilchrist

Family CHAMPSODONTIDAE

Champsodon capensis Regan

Family TRICHONOTIDAE

Trichonotus setigerus Bloch & Schneider

Family PERCOPHIDAE

Bembrops platyrhynchus (Alcock)

Family MUGILOIDIDAE

Parapercis cylindrica (Bloch)

Family TRIPTERYGIIDAE

Tripterygion fasciatum Weber

Family BLENNIIDAE

Alticus andersoni (Day)*Alticus kirki* (Gunther)*Alticus triangulus* Chapman*Andamia reyi* (Sauvage)*Blennechis filamentosus* (Valenciennes)*Blennius cyclops* (Ruppell)*Ecsenius midas* Starck*Enchelyurus flavipes* Peters*Enchelyurus kraussi* (Klunzinger)*Entomacrodus epalzeocheilus* (Bleeker)*Entomacrodus vermiculatus* (Valenciennes)*Istiblennius andamanensis* (Day)*Istiblennius dayi* (Whitley)*Omobranchus elongatus* (Peters)*Omobranchus punctatus* (Valenciennes)*Omobranchus rotundiceps obliquus* (Garman)*Omobranchus zebra* (Bleeker)*Parenchelyurus hepburni* (Snyder)*Pteroscirtes bankanensis* (Bleeker)*Salarias guttatus* Valenciennes*Salarias hasselti* Bleeker

Family CALLIONYMIDAE

- Callionymus enneactis* Bleeker
Callionymus japonicus (Houttuyn)
Callionymus octostigmatus Fricke

Family ELEOTRIDIDAE

- Bunaka gyrinoides* (Bleeker)
Butis gymnopomus (Bleeker)
Eleotris andamensis Herre
Eleotris lutea Day
Eviota zonura Jordan & Seale
Hypseleotris guntheri (Bleeker)
Perioglossus raoi (Herre)
Prionobutis koilomatodon (Bleeker)
Ptereleotris andamanensis Herre
Ptereleotris microlepis (Bleeker)

Family GOBIIDAE

- Amblygobius bynoensis* (Valenciennes)
Awaous grammepomus (Bleeker)
Callogobius andamanensis Menon & Chatterjee
Callogobius trifasciatus Menon & Chatterjee
Cottogobius bilobatus Koumans
Ctenobogius grammatogaster Bleeker
Cryptocentrus pavoninoides Bleeker
Drombus triangularis (Weber)
Favonigobius reichei (Bleeker)
Gnatholepis cauerensis (Bleeker)
Gobiodon erythrospilus Bleeker
Gobiodon quinquestrigatus (Valenciennes)

Gobiodon histrio Cuvier & Valenciennes
Gobiopsis arenaria Snyder
Oligolepis acutipennis (Valenciennes)
Oxuderces dentatus Eydoux & Souleyet
Oxyurichthys talwari Mehta *et al*
Paragobiodon echinocephalus (Ruppell)
Parapocryptes macrolepis (Bleeker)
Periophthalmodon schlosseri (Pallas)
Periophthalmodon tredecemradiatus (Ham.-Buch.)
Periophthalmus dipus Bleeker
Periophthalmus variabilis Eggert
Pseudapocryptes lanceolatus (Bloch & Schneider)
Pseudogobius javanicus (Bleeker)
Sicyopterus microcephalus (Bleeker)
Stigmatogobius hoevenii (Bleeker)
Stigmatogobius romeri (Weber)

Family GOBIOIDIDAE

Brachyamblyopus eurolepis (Bleeker)
Odontamblyopus rubicundus (Ham.-Buch.)
Taenioides angularis (Linnaeus)
Taenioides cirratus (Blyth)
Trypauchen vagine (Bloch & schneider)

Family TRAYPAUCHENIDAE

Ctenotrypauchen microcephalus (Bleeker)

Family KRAEMERIIDAE

Kraemicus smithi Menon & Talwar

Family CONGROGADIDAE

Congrogadus subducens (Richradson)

Family ACANTHURIDAE

Ctenochaetus strigosus (Bennett)

Family SIGANIDAE

Lo magnificus Burgess

Siganus argenteus (Quoy & Gaimard)

Siganus corallinus (Valenciennes)

Siganus fuscescens (Houttuyn)

Siganus labyrinthodes (Bleeker)

Siganus puelloides Woodland & Randall

Family TRICHIURIDAE

Trichurus lepturus Linnaeus

Tentoriceps cristatus (Klunzinger)

Family SCOMBRIDAE

Acanthocybium solandri (Cuvier)

Grammatorcynus bilineatus (Ruppell)

Gymnosarda unicolor (Ruppell)

Katsuwonus pelamis (Linnaeus)

Sarda orientalis (Temminck & Schlegel)

Scomberomorus commersonii (Lacepede)

Scomberomorus guttatus Bloch & Schneider

Thynnus alalunga (Bonnaterre)

Thynnus albacares (Bonnaterre)

Thynnus obesus Lowe

Thynnus tonggol (Bleeker)

Family XIPHIIDAE

Xiphias gladius Linnaeus

Family ISTIOPHORIDAE

Istiophorus platypterus Shaw & Nodder*Tetrapterus audax* (Philippi)*Makaira mazara* (Jordan & Schneider)

Family CENTROLOPHIDAE

Psenopsis obscura Haedrich

Family NOMEIDAE

Psenes maculatus Lutken

Family CHANNIDAE

Channa stewartii (playfair)

Order PLEURONECTIFORMES

Family BOTHIDAE

Arnoglossus tapeinosoma (Bleeker)*Bothus myriaster* (Temminck & Schlegel)*Engyprosopon grandisquama* Temminck & Schlegel)*Pseudorhombus dupliciocellatus* (Regan)

Family PLEURONECTIDAE

Brachypleura novae-zeelandiae Gunther*Poecilopsetta colorata* Gunther*Poecilopsetta praelonga* (Alcock)*Samaris cristatus* Gray

Family CYNOGLOSSIDAE

Cynoglossus arel (Schneider)*Cynoglossus macrolepidotus* (Bleeker)*Symphurus septumstriatus* (Alcock)*Symphurus woodmasoni* (Alcock)

Family SOLEIDAE

Euryglossa orientalis (Schneider)

Soleichthys heterorhinos (Bleeker)

Order TETRAODONTIFORMES

Family TRIACANTHODIDAE

Halimochirugus centriscoides Alcock

Tydemanina navigatoris Weber

Macrorhamphosodes platycheilus Fowler

Mephisto fraserbrunneri Tyler

Family TRIACANTHIDAE

Triacanthus brevirostris indicus Regan

Family BALISTIDAE

Anacanthus barbatus Gray

Aluterus monoceros (Linnaeus)

Odonus niger (Randall)

Pseudobalistes flavomarginatus (Ruppell)

Family OSTRACIIDAE

Tetrosomus gibbosus (Linnaeus)

Family TETRAODONTIDAE

Canthigaster investigatoris (Annandale & Jenkins)

Chelonodon fluviatilis (Hem.-Buch.)

Lagocephalus lunaris (Bloch & Schneider)

TAXONOMIC INDEX

Italics for names of Genera and Species and capitals for higher ranks.

- Abalistes stellatus* 339
 abbreviatus, *Gerres* 194
Ablabys macracanthus 375
 taenianotus 375
Ablennes hians 374
Abudefduf bengalensis 241
 cyaneus 382
 notatus 382
 septemfasciatus 241
 sexatilis 382
 sordidus 241, 242
 vaigiensis 241, 242
Acanthocybium solandri 387
Acanthopagrus berda 200
 ACANTHURIDAE 29, 312, 387
Acanthurus leucosternon 313
 lineatus 313, 314
 nigricauda 313, 314
 striatus 315
 triostegus 313, 314
 velifer 317
 xanthopterus 313, 315
Acentrogobius bontii 296
 reichei 296, 297
 viridipunctatus 296, 297
Acentronura gracillima 375
Achirus marmoratus 332
 pavoninus 333
achlamys, *Gazza* 378
acinaces, *Gerres* 380
aculeatus, *Balistes* 341
 Rhinecanthus 341
 acuminatus, *Chaetodon* 235
 Heniochus 235
acuta, *Dussumieria* 69
acutipennis, *Oligolepis* 386
acutus, *Carcharias* 51
 Rhizoprionodon 51
adusta, *Myripristis* 93
adustus, *Myripristis* 93
Aeoliscus strigatus 99
Aesopia quagga 333
Aethaloperca rogaa 125
Aetobatus narinari 55
affinis, *Euthunnus* 323
 Thynnus 323
agassizii, *Ipnotis* 371
akallopisos, *Amphiprion* 243
alalunga, *Thynnus* 388
Alausa toli 70
albacares, *Thynnus* 388
albimaculatus, *Amblygobius* 298
 Gobius 298
Albula vulpes 57
 ALBULIDAE 16, 57
alcocki, *Dysalotus* 384
Alectis ciliaris 158
Alepes djedaba 159
 melanoptera 378
 para 159, 160
 ALEPOCEPHALIDAE 370
Alepocephalus longiceps 371

- Alticus andersoni* 384
 kirki 384
 triangulus 384
altivelis, *Chromileptes* 130
 serranus 130
alula, *Synanceia* 376
Aluterus monoceros 388
 scriptus 336
AMBASSIDAE 41, 122, 376
Ambassis buruensis 122
 buton 376
 commersoni 376
 dussumieri 376
 gymnocephalus 376
 interrupta 122
 interruptus 122
 kosii 376
 nalua 376
 urotaenia 123
amblycephalus, *Johnius* 213
 Umbrina 213
Amblygaster leiogaster 369
 siram 68
Amblyglyphidodon leucogaster 382
Amblygobius albimaculatus 298
 bynoensis 385
Amblyopus cirratus 311
Amblypomacentrus breviceps 243
Amblyrhynchotes hypselogeneion 345
Amphacanthus vermiculatus 320
 virgatus 321
Amphiprion akallopisos 243
 ckarkii 243, 244
 ephippium 243, 244
 frenatus 382
 ocellaris 243, 245
 polymnus 382
 sebae 382
Amphisile strigatus 99
ANABANTIDAE 42, 326
Anabas testudineus 326
Anacanthus batbatus 388
Anampses caeruleopunctatus 383
anchorago, *Choerodon* 263
 Sparus 264
andamanensis, *Callogobius* 386
 Eleotris 385
 Istiblennius 385
 Ptereleotris 385
andamanica, *Cruciraja* 367
Andamia heteroptera 282
 reyi 384
andersoni, *Alticus* 384
Anguilla bengalensis 57
 bicolor 57, 58
ANGUILLIDAE 13, 57
ANGUILLIFORMES 13, 57, 368
angularis, *Taenioides* 387
annularis, *Chaetodon* 237
 Pomacanthus 237
annulata, *Opistognathus* 384
Anodontostoma chacunda 68
 selangkat 369
 thailandiae 369
Anoxypristis cuspidatus 367
ANTENNARIIDAE 23, 84
Antennarius coccineus 84
 chironectes 85

commersoni 84
antennata, Pterois 111
Scorpaena 111
Anthias bilineatus 209
clarkii 244
johnii 184
maculatum 199
orientalis 198
squamipinnis 124
testudineus 326
Anyperodon leucogrammicus 125
Aphareus rutilans 177
 APHYONIDAE 373
apicalis, Ophichthus 368
Apistus barbatus 115
depressiformis 114
niger 115
trachinoides 115
 APLOCHEILIDAE 17, 91
Aplocheilus panchax 91
 APLOCTINIDAE 376
Apocryptes cantoris 310
Apogon aureus 147
chrysotaenia 378
coccineus 146, 148
cookii 147, 148
cyanosoma 147, 148
endekataenia 147, 149
fraenatus 147, 149
fragilis 378
fucatus 152
guamensis 147, 150
hyalosoma 146, 150
kallopterus 378

lateralis 378
ocellatus 152
orbicularis 154
punctulatus 154
quadrifasciatus 147, 151
sangiensis 378
trimaculatus 146, 151
Apogonichthys auritus 378
ocellatus 152
perdix 378
poecilopterus 378
 APOGONIDAE 39, 146, 378
aporos, Eleotris 293
Ophieleotris 293
Aprion virescens 177
Apristurus investigatoris 366
Archamia fucata 152
arel, Cynoglossus 389
arenaria, Gobiopsis 386
areolata, Perca 132
areolatus, Epinephelus 130, 132
argenteum, Glyptophidium 373
argenteus, Chaetodon 221
Monodactylus 221
Pomadasys 380
Siganus 387
argentilineatus, Periophthalmus 308
argentimaculata, Sciaena 180
argentimaculatus, Lutjanus 180
argus, Cephalopholis 126
Chaetodon 227
Halichoeres 266
Labrus 266
Scatophagus 227

argyreus, *Pomadasys* 198

Pristipoma 198

ARIIDAE 370

Ariosoma macrocercus 368

mauritanum 67

Arius macronotacanthus 370

sumatranus 370

thalassinus 370

armata, *Setula* 161

armatus, *Carangoides* 161

Arnoglossus tapeinosoma 388

Arothron immaculatus 346

mappa 346, 347

nigropunctatus 346, 347

palembangensis 346, 347

reticularis 346, 348

stellatus 346, 348

arsius, *Pseudorhombus* 329

Pleuronectis 329

aruanus, *Chaetodon* 248

Dascyllus 247

Asterropteryx semipunctatus 298

Astrosalarias fuscus 282

ATELEOPODIDAE 374

Ateleopus indicus 375

Atherina duodecimalis 92

lacunosa 92

sihama 155

ATHERINIDAE 27, 91, 374

ATHERINIFORMES 27, 91, 374

Atherinomorus duodecimalis 91, 92

endrachtensis 374

lacunosus 91, 92

atratus, *Evermannella* 372

Atule mate 160

audax, *Tetrapterus* 387

Aulacocephalus temmincki 377

AULOPIFORMES 13, 78, 371

aureus, *Apogon* 147

Centropomus 147

auriga, *Chaetodon* 229

auritus, *Apogonichthys* 387

Auxis rochei 322, 323

thazard 322, 323

Avocettina infans 368

Awaous grammepomus 386

stamineus 299

B

baelama, *Clupea* 73

Thryssa 73

baillonii, *Caesiomorus* 171

Trachinotus 171

balangerii, *Johnius* 381

Balistapus undulatus 339

Balistes aculeatus 341

biaculeatus 334

chrysopterus 342

longirostris 337

maculatus 340

rectangulus 342

scriptus 336

stellatus 339

undulatus 339

verrucosus 342

viridescens 340

BALISTIDAE 25, 338, 389

Balistoides viridescens 340

baliurus, *Gnatholepis* 302

Gobius 302

balteatus, *Dipterygonotus* 191
bankanensis, *Pteroscirtes* 385
Barathronus diaphanus 373
barbata, *Tetraroge* 115
barbatus, *Anacanthus* 389
 Apistus 115
barberinus, *Mullus* 216
 Parupeneus 216
barbonicus, *Lethrinus* 201, 202
barracuda, *Esox* 255
 Sphyraena 255
Bathyclupea hoskynii 381
 BATHYCLUPEIDAE 381
Bathygadus furvescens 372
Bathygobius fuscus 299
Bathypterois guentheri 371
Bathytroctes microlepis 371
batrachus, *Clarias* 77
 Silurus 77
Belone crocodilus 90
 gigantea 90
 strongylura 89
 BELONIDAE 17, 89, 374
Bembrops platyrhynchus 384
bengalensis, *Abudefduf* 241
 Anguilla 57
 Chaetodon 241
 Lutjanus 379
 Muraena 57
bennetti, *Canthigaster* 349
 Tropidichthys 349
Benthoosema pterotum 372
berbis, *Leiognathus* 379
berda, *Acanthopagrus* 200
 Sparus 200

Bergmaceros macclellandii 372
 BERGMACEROTIDAE 372
 BERYCIFORMES 21, 92, 375
Bhanotia fasciolata 375
biaculeatus, *Balistes* 334
 Chaetodon 250
 Premnas 250
 Syngnathoides 107
 Syngnathus 107
 Triacanthus 334
bicarinatus, *Grammatorcynus* 324
 Thynnus 324
bicirrhosus, *Gobius* 304
 Illana 304
bicolor, *Anguilla* 58
bifasciata, *Pomacentrus* 382
bifasciatus, *Mullus* 217
 Parupeneus 216
biguttatus, *Lutjanus* 178, 180
 Serranus 180
bilineata, *Paraplagusia* 331
 Pleuronectis 331
bilineatus, *Anthias* 209
 Grammatorcynus 387
 Scolopsis 209
bilitonensis, *Blenniella* 283
 Salarias 283
bilobatus, *Cottogobius* 386
bimaculatus, *Scolopsis* 211
biocellata, *Chrysiptera* 246
 Glyphisodon 246
biocellatus, *Glossogobius* 301
 Gobius 301
bipinnulata, *Elegatis* 165
 Seriola 165

- bleekeri*, *Epinephelus* 377
Nemipterus 206
Salarias 288
Solea 333
Synagris 206
Blenniella bilitonensis 283
cyanostigma 283
periophthalmus 284
 BLENNIIDAE 37, 281, 384
Blennechis filamentosus 384
Blennius breviceps 287
cyclops 384
edentulus 286
fasciatus 288
snowi 287
blochii, *Caesiomorus* 171
Eusphyra 367
Leiognathus 379
Priacanthus 377
Trachinotus 170, 171
boddart, *Boleophthalmus* 299
Gobius 300
Bodianus boenak 127
maculatus 140
undulosus 139
boenak, *Bodianus* 127
Cephalopholis 126, 127
bohar, *Lutjanus* 180, 181
Sciaena 181
Bola coioides 133
Boleophthalmus boddart 299
bontii, *Acentrogobius* 296
Gobius 296
boops, *Caranx* 169
Selar 169
boschi, *Gymnothorax* 368
Bostrichthys sinensis 291
 BOTHIDAE 48, 328, 388
Bothus myriaster 388
pantherinus 328
boutton, *Lutjanus* 379
Brachyamblyopus eurolepis 386
Brachypleura novae-zeelandiae 389
brachypterus, *Dendrochirus* 109
Pterois 109
brachysoma, *Diplacanthopoma* 373
Rastrelliger 324, 325
Sardinella 71
Scomber 324
brachyurus, *Microphis* 375
 BRAMIDAE 36, 176
breviceps, *Amblypomacentrus* 243
Blennius 289
Glyphysodon 243
Pteroscirtes 286, 287
brevirostris, *Equula* 173
Leiognathus 173
Malacanthus 378
Nezumia 373
Triacanthus 389
Brotula multibarbata 82
Brotulina piger 373
buchanani, *Mugil* 254
Valamugil 254
buffonis, *Hemiramphus* 88
Zenarchopterus 88
Bunaka gyrinoides 385
buruensis, *Ambassis* 122
Butis butis 291
gymnopomus 385

butis, *Cheilodipterus* 291

buton, *Ambassis* 376

bynoensis, *Amblygobius* 385

C

caerulaurea, *Caesio* 187

caerulea, *Chromis* 245

Heliases 245

caeruleolineatus, *Plesiops* 143

caeruleopinnatus, *Carangoides* 161, 162

Caranx 162

caeruleopunctatus, *Anampses* 383

Epinephelus 132

Holocentrus 132

caeruleus, *Diaphus* 372

Gomphosus 265

Caesio caerulaurea 189

chrysozona 192

cuning 189

gymnopterus 191

lunaris 189, 190

pisang 192

tile 193

xanthonota 189, 190

Caesiomorus baillonii 171

blochii 171

CAESIONIDAE 45, 188

Calatomus viridescens 383

calcarifer, *Holocentrus* 121

Lates 121

caledonicus, *Inimicus* 376

CALLIONYMIDAE 38, 289, 385

Callionymus enneactis 385

filamentosus 289, 290

indicus 120

japonicus 385

octostigmatus 385

opercularis 290

Callogobius andamannsis 386

hasselti 300

trifasciatus 386

canadus, *Gasterosteus* 156

Rachycentron 156

cancellatus, *Chaetodon* 318

Scolopsis 209, 210

Siganus 318

cancrivorus, *Pisodonophis* 368

canescens, *Chaetodon* 316

Xanclus 316

caninoides, *Gobius* 306

Oplopomus 306

canius, *Plotosus* 370

Cantherhinus pardalis 336

Canthidermes maculatus 340

Canthigaster bennetti 349

investigatoris 390

solandri 349

cantoris, *Apocryptes* 310

Scarteloas 310

capensis, *Champsodon* 384

CARACANTHIDAE 21, 118

Caracanthus unipinna 118

CARANGIDAE 32, 378

Carangoides armatus 161

caeruleopinnatus 161, 162

chrysophrys 378

dinema 161, 162

fulvoguttatus 378

gymnostethus 378

- hedlandensis* 161, 162
malabaricus 161, 163
oblongus 161, 163
plagiotaenia 378
talamparoides 379
carangus, *Caranx* 164
Scomber 164
Caranax boops 169
caeruleopinnatus 162
carangus 164
ignobilis 379
leptolepis 170
mate 163
melampygus 164
oblongus 163
para 159
sexfasciatus 164, 165
CARAPIDAE 83
Carapus homei 83
carbunclis, *Platycephalus* 120
Thysanophrys 120
Carcharias acutus 51
wheeleri 367
CARCHARHINIDAE 10, 50, 367
Carcharhinus dussumieri 367
macloiti 367
melanopterus 51
obesus 51
sealei 367
sorrah 367
Carinata, *Liza* 382
carnicauda, *Halosaurus* 368
carnolabrum, *Lipocheilus* 379
carouna, *Johnius* 381
carponotatus, *Lutjanus* 379
Catla catla 370
caudimaculatum, *Holocentrum* 95
Sargocentron 95
cauerensis, *Gnatholepis* 386
cautes, *Xenoploactis* 376
CENTRISCIDAE 19, 99
centriscoides, *Halimochirus* 389
Centriscus scutatus 100
Centrogenys vaigiensis 377
CENTROLOPHIDAE 388
CENTROPOMIDAE 41, 121
Centropomus aureus 147
Centropyge eibli 381
Cephalopholis argus 126
boenak 126, 127
cyanostigma 126, 127
formosa 126, 128
leopardus 377
microprion 126, 128
miniata 126, 129
sonnerati 126, 129
urodeta 126, 129
chacunda, *Anodontostoma* 68
clupandon 68
Chaetodon acuminatus 235
annularis 237
argenteus 221
argus 227
aruanus 248
auriga 229
bengalensis 241
biaculeatus 250
cancellatus 318

canescens 316
collare 228, 230
diacanthus 239
ephippium 229, 230
falcula 229, 231
fasciatus 229
guttatissimus 228, 231
guttatus 319
imperator 238
lineatus 314
lineolatus 229, 232
lividus 250
lunula 229, 232
meyeri 228, 232
orbicularis 226
pinnatus 227
plebeius 227, 233
punctata 226
sordidus 242
triangulum 228, 233
trifasciatus 234
triestegus 314
vagabundus 229, 234
chaetodonoides, *Plectorhinchus* 197
CHAETODONTIDAE 34, 42, 228
Champsodon capensis 384
CHAMPSODONTIDAE 384
Channa orientalis 326, 327
punctatus 327
stewartii 387
CHANIDAE 14, 75
CHANNIDAE 41, 326, 388
Chanos chanos 75
chanos, *Mugil* 75

chatareus, *Coius* 223
Toxotes 223
CHAULIODONTIDAE 371
Chauliodus sloani 371
Cheilinus chlorurus 261
diagrammus 261
fasciatus 261, 262
trilobatus 261, 262
undulatus 261, 263
Cheilio inermis 263
Cheilodipterus butis 291
lineatus 153
quinquelineatus 153
Cheiloprion labiatus 382
Chelonodon fluviatilis 390
patoca 350
CHIASMODONTIDAE 384
Chiloscyllium punctatum 49
CHIROCENTRIDAE 15, 74
Chirocentrus dorab 75
chironectes, *Antennarius* 85
Chironectes coccineus 84
Chironemus tala 168
tol 168
CHLOROPHTHALMIDAE 371
chlorostigma, *Epinephelus* 377
chlorurus, *Cheilinus* 261
Sparus 261
cho, *Sillago* 378
Choerodon anchorago 263
robustus 383
Choeroichthys sculptus 103
CHONDRICHTHYES 10, 49, 366
CHORDATA 10

- Chromileptes altivelis* 130
Chromis caerulea 245
Chrysiptera biocellata 246
 glauca 382
 leucopoma 246
 unimaculata 246, 247
chrysophrys, *Carangoides* 378
chrysopterus, *Balistes* 342
 Sufflamen 342
chrysotaenea, *Sphyræna* 382
chrysotaenia, *Appogon* 378
chrysozona, *Caesio* 192
 Pterocaesio 192
chrysus, *Halichoeres* 266, 267
ciliaris, *Alectis* 158
 Zeus 158
ciliatus, *Holocentrus* 210
 Scolopsis 209, 210
cinerascens, *kyphosus* 224, 225
 Sciaena 225
cinnabarinus, *Parupeneus* 216, 217
 Upeneus 217
cirratus, *Amblyopus* 311
 Taenioides 311, 387
Cirrhimuraena playfairii 65
Cirrhinus mrigala 370
CIRRHITIDAE 30, 251
Cirrhitis pinnulatus 251
cirrhus, *Perca* 113
 Scorpaenopsis 113
citrinus, *Gobiodon* 302
 Gobius 302
CLARIIDAE 24, 76
Clarias batrachus 77
 clarkii, *Amphiprion* 243
 Anthias 244
clathrata, *Parapercis* 278, 279
Clupanodon chacunda 68
Clupea baelama 73
 cyprinoides 56
 dorab 75
 fasciatus 174
 melanura 71
 mystax 74
 setirostris 74
 siram 68
CLUPEIDAE 15, 67, 369
CLEPEIFORMES 14, 67, 369
cochinensis, *Neopomacentrus* 382
coccinea, *Halieutaea* 374
coccineus, *Antennarius* 84
 Apogon 146, 148
 Chironectes 84
Cociella crocodila 119
Cocotropus echinatus 376
 steinitzi 376
Coelorinchus flabellispinis 82
 parallelus 372
 quadricristatus 372
coeruleus, *Diaphus* 372
Coilia ramcarti 370
coioides, *Bola* 133
 Epinephelus 133
Coius chatareus 223
collare, *Chaetodon* 228, 230
Coloconger raniceps 368
COLOCONGRIDAE 368
colorata, *Poecilopsetta* 389

- colubrina*, *Muraena* 66
colubrinus, *Myrichthys* 66
commersoni, *Ambassis* 376
 Antennarius 84, 85
 Lophius 85
commersonii, *Fistularia* 98
 Scomberomorus 388
 Stolephorus 72
commersonnianus, *Scomberoides* 167
conchyliatus, *Lethrinus* 380
concolor, *Uropterygius* 63
Congresox talabon 369
CONGRIDAE 14, 67, 368
CONGROGADIDAE 387
Congrogadus subducens 387
cookii, *Apogon* 147, 148
corallicola, *Plesiops* 143
corallinus, *Siganus* 387
cordyla, *Megalaspis* 166
 Scomber 166
cornuta, *Lactoria* 343
cornutus, *Ostracion* 343
Corphaena pentadactylus 274
Corphyana hippurus 379
 lutea 207
CORYPHAENIDAE 379
Coryphaenoides macrolophus 372
corythaeolum, *Yarrella* 371
Corythoichthys haematopterus 102, 103
 intestinalis 103
 mataafae 105
Cossyphus dimidiatus 271
Cottogobius bilobatus 386
crenilabis, *Crenimugil* 253
 Mugil 253
Crenimugil crenilabis 253
criniger, *Gobius* 312
 Yongeichthys 312
cristatus, *Samaris* 389
 Taenioides 311, 387
 Tentoriceps 387
crocodila, *Cociella* 119
crocodilus, *Belone* 90
 Platycephalus 119
 Tylosurus 90
Cruciraja andamanica 367
crumenophthalmus, *Scomber* 169
 Selar 169
Cryptocentrus pavoninoides 386
Ctenochaetus striatus 315
 strigosus 387
Ctenogobius grammogaster 386
Ctenotrypauchen microcephalus 387
cubicus, *Ostracion* 344
cuning, *Caesio* 189
 Sparus 189
cunnesius, *Mugil* 254
 Valamugil 254
curtorhynchus, *Monacanthus* 337
 Paramonacanthus 337
cuspidatus, *Anoxypristis* 367
cyaneus, *Abudefduf* 382
cyanopterus, *Solenostomus* 101
cyanosoma, *Apogon* 147, 148
cyanostigma, *Blenniella* 283
 Cephalopholis 126, 127
 Salarias 283
 Serranus 127

cyanotenia, Pseudochromis 142

cyclops, Blennius 384

cyclostomus, Mullus 217

Parupeneus 216, 217

Cyclothone microdon 371

cylindrica, Parapercis 384

Cymolutes lecluse 264

CYNOGLOSSIDAE 48, 330, 389

Cynoglossus arel 389

lida 330

miacrolepidotus 389

CYPRINIDAE 17, 76, 370

CYPRINIFORMES 17, 76, 370

CYPRINODONTIFORMES 17, 86, 374

cyprinoides, clupea 56

Megalops 56

Cyprinus daniconius 76

Cypselurus furcatus 86

oligolepis 86

starksi 374

D

dactyla, Scorpaena 116

dactyliophorus, Doryramphus 104

Syngnathus 104

DACTYLOPTERIDAE 20, 107

DACTYLOPTERIFORMES 20, 107

Dactyloptena orientalis 108

Dactylopterus orientalis 108

Dalophis ruppelliae 62

daniconius, Cyprinus 76

parluciosoma 76

danricus, Esomus 370

Dascyllus aruanus 247, 248

marginatus 248

trimaculatus 248, 249

DASYATIDAE 12, 53

Dasyatis kuhlii 54

thetidis 54

daura, Leiognathus 379

dayi, Istiblennius 385

Pellona 369

Decapterus maruadsi 379

russelli 379

decorus, Leiognathus 379

decussatus, Lutjanus 181

Mesoprion 181

Dendrochirus brachypterus 109

zebra 110

Dendrophysa russelli 213

dentatus, Oxudercus 386

Dentex metopias 208

tolu 208

depressiforms, Apistus 114

Vespacula 114

diacanthus, Chaetodon 239

Pygoplites 239

Diacope rivulata 187

diademophilus, Diaphus 372

Diagramma pictum 196

pictus 380

diagrammus, Cheilinus 261

Labrus 261

Plectorhinchus 380

diaphanus, Barathronus 373

Diaphus coeruleus 372

diademophilus 372

malayanus 372

nielsenii 372

regani 372
suborbitalis 372
Dicrolena intronigra 373
multifilis 373
nigricaudis 373
didactyla, *Scorpaena* 116
didactylus, *Inimicus* 116
dimidiatus, *Cossyphus* 271
Labroides 271
dinema, *Carangoides* 161, 162
Dinematichthys ilucoeteoides 83
Diodon holocanthus 351, 352
hystrix 351, 352
liturosus 351, 352, 353
DIODONTIDAE 24, 351
diphreutes, *Heniochus* 235, 236
Diplacanthopoma brachysoma 373
raniceps 373
Dipterygonotus balteatus 191
dipus, *Periophthalmus* 386
Dischistodus perspicillatus 249
dispar, *Hemiramphus* 89
distigma, *Eviota* 293
ditchela, *Pellona* 70
djedaba, *Alepes* 159
Scomber 159
djiddensis, *Rhynchobatus* 367
dorab, *Chirocentrus* 75
Clupea 75
Doryichthys martensi 103, 104
Sculptus 103
Doryramphus dactyliophorus 104
excisus 104
draconis, *Eurypegasus* 375

Drepane punctata 226
Drombus triangularis 386
dubiosus, *Scolopsis* 209, 211
dubius, *Scarus* 275
duodecimalis, *Atherina* 92
Atherinomorus 92
dupliciocellatus, *Pseudorhombus* 388
dussumieri, *Ambassis* 367
Carcharhinus 367
Hemiramphus 88
Hyporhamphus 88
Istiblennius 285
Johnieops 381
Leiognathus 379
Salarias 285
Dussumieria acuta 69
elopsoides 69
hasselti 69
Dysalotus alcocki 384
E
ECHENEIDAE 33, 378
Echeneis naucrates 156
Echidna nebulosa 59
nigra 368
zebra 59
echinatus, *Cocotropus* 376
echinocephalus, *Paragobiodon* 386
Ecsenius lineatus 284
midas 384
edentulus, *Blennius* 286
Istiblennius 286
ehrenbergii, *Lutjanus* 182
eibli, *Centropyge* 381
ELASMOBRANCHII 49

- Elegatis bipinnulata* 165
ELEOTRIDIDAE 40, 385
Eleotriodes sexguttatus 292
Eleotris andamanensis 385
 aporos 293
 fusca 292
 hasselti 300
 lutea 385
 porocephala 294
 sexguttatus 292
Eleutherochir opercularis 290
elevatus, *Pseudorhombus* 329, 340
elongatus, *Gymnocranius* 200
 Omobranchus 385
ELOPIDAE 367
ELOPIFORMES 15, 56, 367
Elops machnata 367
elopsoides, *Dussumieria* 69
Enchelyurus flavipes 384
 kraussi 384
Encrasicholina heteroloba 370
endekataenia, *Apogon* 147, 149
endrachtensis, *Atherinomorus* 374
englemani, *Synodus* 371
ENGRAULIDIDAE 15, 72, 370
Engyprosopon grandisquama 388
enneacanthus, *Scarus* 383
enneactis, *Callionymus* 385
Entomacrodus striatus 285
 epalzeocheilus 384
 vermiculatus 384
epalzeocheilus, *Entomacrodus* 384
EPHIPPIDIDAE 35, 381
ephippium, *Amphiprion* 243
 Chaetodon 229, 230
 Lutjanus 244
Ephippius orbis 381
Epibulus insidiator 264
Epinephelus areolatus 130, 132
 bleekeri 377
 caeruleopunctatus 132
 chlorostigma 377
 coioides 131, 133
 erythrurus 132, 133
 fario 377
 fasciatus 132, 134
 flavocaeruleus 130, 134
 fuscoguttatus 131, 135
 hexagonatus 377
 lanceolatus 130, 135
 longispinis 131, 135
 macrospilos 131, 136
 malabaricus 131, 136
 megachir 137
 melanostigma 131, 137
 meliaris 377
 merra 131, 137
 ongus 132, 138
 quoyanus 131, 138
 spilotoceps 131, 139
 tauvina 377
 undulosus 130, 139
Equula brevirostris 173
 leuciscus 175
 longispinis 175
 splendens 175
equula, *Leiognathus* 173, 174
 Scomber 174

Eridacnis radcliffei 367
erumei, *Psettodes* 328
 Pleuronectis 328
erythracanthus, *Lethrinus* 380
erythropterus, *Lethrinus* 380
 Lutjanus 181
erythrospilus, *Gobiodon* 386
erythrurus, *Epinephelus* 133
 Serranus 133
Escenius midas 384
Escualosa thoracata 369
Esomus danricus 370
Esox barracuda 255
 far 87
 panchax 91
 vulpes 57
eurolepis, *Brachyamblyopus* 386
Euryglossa orientalis 389
Eurypegusus draconis 375
Eusphyra blochii 367
Euthunnus affinis 323
Evermannella atratus 372
EVERMANNELLIDAE 372
Eviota distigma 293
 zonura 385
excisus, *Doryramphus* 104
EXOCOETIDAE 18, 86, 374
Exocoetus furcatus 86
 oligolepis 86
 volitansm 374
Exyrias puntang 300
F
facula, *Chaetodon* 228, 231
far, *Esox* 87

Hemiramphus 87
fario, *Epinephelus* 377
fasciata, *perca* 134
fasciatum, *Tripterygion* 384
fasciatus, *Blennius* 288
 Chaetodon 229
 Cheilinus 262
 Clupea 174
 Epinephelus 132, 134
 Leiognathus 173, 174
 Salarias 288
 Sparus 262
 Squalus 50
 Stegostoma 50
fasciolata, *Bhanotia* 375
faughni, *Rastrelliger* 324, 325
favagineus, *Gymnothorax* 368
Favonigobius reichei 386
filamentosus, *Blennechis* 384
 Callionymus 289, 290
 Gerres 193, 194
filigera, *Ilisha* 369
fimbriata, *Sardinella* 369
fimbriatus, *Gymnothorax* 60
 Muraena 60
Fistularia commersonii 98
 paradoxus 101
 petimba 98, 99
FISTULARIIDAE 18, 98
flabellispinis, *Coelorinchus* 82
 Macrurus 82
flavicauda, *Sphyræna* 255, 256
flavimarginatus, *Gymnothorax* 61
 Muraena 61

flavipes, *Enchelyurus* 384
flavocaeruleus, *Epinephelus* 130, 134
Holocentrus 134
flavolineatus *Mulloid*es 215
Mullus 215
flavomarginatus, *Pseudobalistes* 389
fluviatilis, *Chelonodon* 390
fluviflamma, *Lutjanus* 178, 182
Sciaena 182
formosa, *Cephalopholis* 126, 128
Sciaena 128
forsteri, *Grammistes* 252
Paracirrhitis 252
Sphyraena 382
fossilis, *Heteropneustes* 77
Silurus 77
Fowleria punctulata 154
fraenatus, *Apogon* 147, 149
fragilis, *Apogon* 378
fraserbrunneri, *Mephisto* 379
frenatus, *Amphiprion* 382
Scarus 275, 276
Scolopsis 381
fucata, *Archamia* 152
fucatus, *Apogon* 152
fulvoguttatus, *Carangoides* 387
fulvus, *Holocentrus* 183
Lutjanus 183
furcatus, *Cypselurus* 86
Exocoetus 86
Pomadasys 380
furvescens, *Bathygadus* 372
fusca, *Eleotris* 292
Poecilia 292

fuscescens, *Siganus* 387
fuscoguttata, *Perca* 135
fuscoguttatus, *Epinephelus* 131, 135
fuscus, *Astrosalarias* 282
Bathygobius 299
Gobius 299
Pseudochromis 377
Salarias 282

G

GADIFORMES 27, 81, 372
Gadomus multifilis 373
Gasterosteus canadus 156
volitans 112
Gavialiceps taeniola 369
Gazza achlamys 378
minuta 172
gerrardia, *Himantura* 54
Trygon 54
GERREIDAE 43, 390
Gerres abbreviatus 194
acinaces 390
filamentosus 193, 194
lucidus 390
oblongus 193, 195
oyena 194, 195
poeti 194, 195
Gerromorpha setifer 390
ghanam, *Scolopsis* 381
ghobban, *Scarus* 275, 276
gibbosa, *Sardinella* 369
Scorpaenopsis 113
gibbosus, *Holocentrus* 197
Plectorhinchus 197
Tetrosomus 390

- gibbus*, *Sciaena* 183
Scarus 383
Lutjanus 183
gigantea, *Belone* 90
Strongylura 90
Tylosurus 90
gilli, *Zenarchopterus* 88
giuris, *Glossogobius* 301
Gobius 301
gladius, *Xiphias* 388
glauca, *Chrysiptera* 382
Prionace 367
globiceps, *Scarus* 383
Glossogobius biocellatus 301
giuris 301
Glyphisodon biocellata 246
breviceps 243
leucopoma 246
septumfasciatus 241
unimaculata 247
vaigiensis 242
Glyptophidium argenteum 373
Gnathanodon speciosus 166
Gnatholepis cauerensis 386
baliurus 302
GOBIIDAE 40, 294, 385
Gobiodon citrinus 302
erythrospilus 386
histrion 386
quinquestrigatus 386
GOBIOIDIDAE 386
Gobiopsis arenaria 386
quinquecincta 303
woodsii 303
Gobius albimaculatus 298
baliurus 302
bicirrhosus 304
biocellatus 301
boddart 300
bontii 296
caninoides 306
citrinus 302
criniger 312
fuscus 299
giuris 301
gymnopomus 310
mystacina 305
oplopomus 306
ornatus 305
papuensis 307
puntang 300
reichei 297
sadanundio 311
semidoliatus 309
stamineus 299
tentacularis 307
viridipunctatus 297
goldmanni, *Istigobius* 304
Gomphosus caeruleus 265
Gonialosa manmina 369
GONORHYNCHIFORMES 14, 75
GONOSTOMATIDAE 371
Gorgasia maculata 369
gracillima, *Acentronura* 375
gracilis, *Saurida* 79
Saurus 79
grammatogaster, *Ctenogobius* 386
Grammatorcynus bicarinatus 324

- bilineatus* 387
grammepomus, *Awaous* 386
Grammistes forsteri 252
sexlineatus 141
GRAMMISTIDAE 46, 141, 377
Grammoplites scaber 376
grandisquama, *Engyprosopon* 388
grandoculis, *Gymnocranius* 380
Monotaxis 380
granulatus, *Rhinobatos* 53
griseus, *Gymnocranius* 380
guamensis, *Apogon* 147, 150
Scorpaena 112
Scorpaenodes 112
guentheri, *Bathypterois* 371
Lagocephalus 350, 351
Seterches 376
guernei, *Photostomias* 371
guilcheri, *Lutjanus* 379
guntheri, *Hypseleotris* 385
guttatissimus, *Chaetodon* 228, 231
guttatus, *Chaetodon* 319
Salarias 385
Scomberomorus 388
Siganus 318, 319
Gymnocaesio gymnoptera 191
gymnocephalus, *Ambassis* 376
Gymnocranius elongatus 200
grandoculis 380
griseus 380
gymnopomus, *Butis* 385
Gobius 310
Stenogobius 310
gymnoptera, *Gymnocoetes* 191
gymnopterus, *Caesio* 387
Gymnosarda unicolor 378
gymnostethus, *Carangoides* 378
Gymnothorax boschi 368
favagineus 368
fimbriatus 60
flavimarginatus 60, 61
hepaticus 364
marmorata 64
richardsoni 60, 61
ruppelliae 60, 62
undulatus 60, 62
zebra 59
gyrinoides, *Bunaka* 385
H
haematopterus, *Corythoichthys* 102
Syngnathus 102
HAEMULIDAE 45, 380
Halaelurus hispidus 366
Halicampus koilomatodon 375
mataafae 105
Halichoeres argus 266
chrysus 266, 267
hortulanus 266, 267
hyrtlui 383
kawarin 383
leparensis 383
margaritaceus 266, 268
marginatus 266, 268
melanurus 266, 269
nebulosus 266, 269
nigrescens 266, 270
notopsis 383
scapularis 266, 270

- Halicmetus ruber* 374
Halieutaea coccinea 374
 nigra 374
Halieutopsis micropus 374
 nasutus 374
Halimochirugus centriscoides 389
HALOSAURIDAE 368
Halosaurus carnicauda 368
hamiltonii, *Thryssa* 73
hamrur, *Priacanthus* 145
 Sciaena 145
harak, *Lethrinus* 201, 202
 Sciaena 202
hasselti, *Callogobius* 300
 Dussumieria 69
 Eleotris 300
 Salarias 385
hassi, *Heteroconger* 369
hedlandensis, *Carangoides* 161, 162
 Olistus 162
Heliases caerulea 245
Hemigymnus melanopterus 271
Hemiramphus buffonis 88
 dispar 89
 dussumieri 88
 far 87
 louti 74
HEMIRAMPHIDAE 18, 87
Heniochus acuminatus 235
 diphreutes 235, 236
 singularis 235, 236
 varius 235, 236
hepaticus, *Gymnothorax* 368
hepburni, *Parenchelyurus* 385
Hepthocara simum 373
heptadactylus, *Polydactylus* 258
 Polynemus 258
heptagonus, *Hippichthys* 105
herbraicum, *Thalassoma* 383
Herklotsichthys quadrimaculatus 369
Heteroconger hassi 369
 obscura 369
heterolepis, *Hymenocephalus* 373
heteroloba, *Encrasicholina* 370
Heteromycteris oculus 332
Heteropneustes fossilis 77
HETEROPNEUSTIDAE 24, 77
heteroptera, *Andamia* 282
heteropterus, *Salarias* 282
heterorhinos, *Soleichthys* 389
hexagonatus, *Epinephelus* 377
hexodon, *Nemipterus* 380
hexophthalma, *Parapercis* 278, 279
 Percis 279
hians, *Ablennes* 374
Hilsa toli 70
Himantura gerrardi 54
Hippichthys heptagonus 105
 spicifer 105, 106
Hippocampus horai 375
 hystrix 375
 kuda 106
 trimaculatus 375
hippurus, *Corphyaena* 379
hispidus, *Halaelurus* 366
Histrio histrio 85
histrio, *Gobiodon* 386
 Histrio 85

- Lophius* 85
hoedtii, *Malacanthus* 378
hoevenii, *Stigmatogobius* 386
Holacanthus semicirculatus 239
Holocanthus, *Diodon* 351, 352
HOLOCENTRIDAE 21, 93, 375
Holocentrus caeruleopunctatus 132
 calcarifer 121
 ciliatus 210
 flavocaeruleus 134
 fulvus 183
 gibbosus 197
 ittodai 95
 lacteoguttatus 374
 lanceolatus 135
 malabaricus 136
 ongus 138
 quiquelineatus 186
Holocentrum caudimaculatum 95
 sammara 94
homei, *Carapus* 83
 Oxybeles 83
horai, *Hippocampus* 275
hortulanus, *Halichoeres* 266, 267
 Labrus 267
hoshinonis, *Synodus* 371
hoskynii, *Bathyclupea* 381
hyalosoma, *Apogon* 150
Hymenocephalus heterolopis 373
Hypoatherina temminckii 374
Hypolophus sephen 55
Hyporhamphus dussumieri 88
 limbatus 374
Hypseleotris guntheri 385
hypselogeneion, *Amblyrhynchotes* 345
 Terodon 345
hyrtlui, *Halichoeres* 385
hystrix, *Diodon* 351, 352
 Hippocampus 375
I
Ichthyocampus kampeni 107
Ichthyophis tigrinus 64
ignobilis, *Caranax* 379
Ilisha filigera 369
 melastoma 369
Illana bicirrhosus 304
ilucoeteoides, *Dinematichthys* 83
immaculatus, *Arothron* 346
 Tetrodon 346
imperator, *Chaetodon* 238
 Pomacanthus 237, 238
indicus, *Ateleopus* 375
 Callionymus 120
 Macilenticthys 379
 Melichthys 340, 341
 Mullus 218
 Parupeneus 216, 218
 Platycephalus 120
 Stolephorus 370
inermis, *Cheilodactylus* 263
 Labrus 263
infans, *Avocettina* 368
Inimicus caledonicus 376
 didactylus 116
insidiator, *Epibulus* 264
 Sparus 264
insularis, *Microphis* 375
interrupta, *Ambassis* 122

interruptus, *Ambassis* 122
intestinalis, *Corythoichthys* 103
intronigra, *Dicrolenie* 373
investigatoris, *Apristurus* 366

Canthigaster 390

Nezumia 373

Satyrichthys 376

Ipnotops agassizii 371

Istiblennius andamanensis 385

dayi 385

dussumieri 285

edentulus 285, 286

lineatus 285, 286

Istigobius goldmanni 304

ornatus 304, 305

ISTIOPHORIDAE 388

Istiophorus platypterus 388

ittodai, *Holocentrus* 95

Sargocentron 95

J

jaculator, *Sciæna* 223

Toxotes 223, 224

janssenii, *Julis* 273

Thalassoma 273

japonensis, *Scarus* 383

japonicus, *Monocentris* 375

Callionymus 385

Nemipterus 207

Ostichthys 375

Polymixia 375

Sparus 207

jarbua, *Sciæna* 144

Terapon 144

javanicus, *Pseudogobius* 386

javus, *Siganus* 318, 319

Teuthis 319

jello, *Sphyræna* 382

johnii, *Anthias* 184

Lutjanus 184

Johnius amblycephalus 213

balangerii 381

carouna 381

ruber 214

Johnieops dussumieri 381

jonesi, *Leiognathus* 379

Julis janssenii 273

margaritaceus 268

melanurus 269

nebulosus 269

scapularis 270

strigiventor 272

K

kaakan, *Pomadasys* 198, 199

Pristipoma 199

kallopterus, *Apogon* 378

kalolo, *Periophthalmus* 308

kampeni, *Ichthyocampus* 107

kanagurta, *Rastelliger* 324, 325

Scomber 325

kasmira, *Lutjanus* 178, 184

Sciæna 184

Katsuwonus pelamis 388

kawarin, *Halichoeres* 383

Ketengus typus 370

kirki, *Alticus* 384

koilomatodon, *Halicampus* 375

Prionobutis 385

kosii, *Ambassis* 376

Kraemicus smithi 387

KRAEMERIIDAE 387

kraussi, *Enchelyurus* 384

kuda, *Hippocampus* 106

Kuhlia mugil 377

rupestris 377

KUHILIIDAE 377

kuhlii, *Dasyatis* 54

Trygon 54

kuru, *Polydactylus* 383

KYPHOSIDAE 44, 224, 381

Kyphosus cinerascens 224, 225

lembus 224

vaigiensis 381

L

Labeo rohita 370

labiatus, *Cheiloprion* 382

labiosus, *Oedalechilus* 382

LABRIDAE 30, 259, 383

Labroides dimidiatus 271

Labrus argus 266

diagrammus 261

hortulanus 267

inermis 265

lunaris 273

melanopterus 271

oyena 195

pinnulatus 251

rutilans 177

tetracanthus 279

trilineata 272

labyrinthodes, *Siganus* 387

LACTARIIDAE 39, 155

Lactarius lactarius 155

lactarius, *Scomber* 155

lacteoguttatus, *Holocentrus* 375

Lactoria cornuta 343

lacunosa, *Atherina* 92

lacunosus, *Atherinomorus* 92

laevis, *Malacocephalus* 373

Lagocephalus guentheri 350, 351

lunaris 390

scleratus 350

LAMNIFORMES 10, 49, 366

LAMPRIFORMES 374

Lamprogrammus niger 373

lanceolatus, *Epinephelus* 130, 135

Holocentrus 135

Pseudapocryptes 386

langsar, *Sphyræna* 255, 256

lateralis, *Apogon* 378

Lates calcarifer 121

latovittatus, *Malacanthus* 378

lecluse, *Cymolutes* 264

Xyrichtys 264

leiogaster, *Amblygaster* 369

LEIOGNATHIDAE 43, 79

Leiognathus berbis 379

blochii 379

brevirostris 173

daura 379

decorus 379

dussumieri 379

equula 173

fasciatus 173, 174

jonesi 379

leuciscus 373, 175

longispinis 173, 175

splendens 173, 175

Leiuranus semicinctus 65
lembus, *Kyphosus* 224
 Pimelepterus 224
lemniscatus, *Lutjanus* 184
 Serranus 184
lentjan, *Lethrinus* 380
leopardus, *Cephalopholis* 377
leparensis, *Halichoeres* 383
Lepidamia multitaeniata 378
Lepidotrigia riggsi 376
Leptocephalus mauritianus 67
leptolepis, *Caranx* 170
 Seleroides 170
Lepturacanthus savala 321
lepturus, *Trichurus* 387
LETHRINIDAE 46, 380
Lethrinus barbonicus 201, 202
 conchyliatus 380
 erythracanthus 380
 erythropterus 380
 harak 201, 202
 lentjan 380
 mahsena 202, 203
 microdon 201, 203
 nebulosus 202, 204
 obsoletus 202, 204
 ornatus 201, 205
 rubrioperculatus 380
 variegatus 380
 xanthochilus 201, 205
leuciscus, *Equula* 175
 Leiognathus 173, 175
leucogaster, *Amblyglyphidodon* 382
leucogrammicus, *Anyperodon* 125

leucopoma, *Chrysiptera* 246
 Glyphisodon 246
leucostarnan, *Acanthurus* 313
leucotaenia, *Scolopsis* 209, 211
lida, *Cynoglossus* 330
 Plagusia 330
limbatus, *Hyporhamphus* 374
lineatus, *Acanthurus* 313, 314
 Chaetodon 314
 Cheilodipterus 153
 Ecsenius 284
 Istiblennius 285, 286
 Plotosus 78
 Salarias 286
 Silurus 78
lineolatus, *Chaetodon* 232
Lipocheilus carnolabrum 379
liturosus, *Diodon* 351, 352, 353
livides, *Stegastes* 382
lividus, *Chaetodon* 229, 250
 Pomacentrus 250
Liza, *carinata* 382
 macrolepis 382
 melinoptera 353
 parsia 382
 subviridis 382
 tade 382
 vaigiensis 253
Lo magnificus 387
Lobotes surinamensis 380
LOBOTIDAE 380
longiceps, *Alepocephalus* 371
 Sardinella 369
longimanus, *Seterches* 376

- longirostris*, *Balistes* 337
Oxymonacanthus 337
longispinis, *Epinephelus* 131, 135
Equula 175
Leiognathus 173, 175
Serranus 135
LOPHIIDAE 373
LOPHIIFORMES 23, 84, 373
Lophiomus setigerus 373
Lophius commersoni 85
histrio 85
louti, *Perca* 141
Variola 141
Loxodon macrorhinus 367
lucidus, *Gerres* 380
lunare, *Thalassoma* 273
lunaris, *Caesio* 190
Labrus 273
Lagocephalus 390
lunula, *Chaetodon* 229, 232
lunulata, *Perca* 185
lunulatus, *Lutjanus* 185
lutea, *Coryphaena* 207
Eleotris 385
lutei, *Hemiramphus* 374
luteus, *Malthopsis* 374
Nemipterus 207
LUTJANIDAE 44, 379
Lutjanus argentimaculatus 180
bengalensis 379
biguttatus 178, 180
bohar 179, 180
boutton 379
carponotatus 379
decussatus 179, 181
ehrenbergii 179, 182
ephippium 244
erythropterus 179, 181
fluviflamma 178, 182
fulvus 179, 183
gibbus 179, 183
guilcheri 379
johnii 179, 184
kasmira 178, 184
lemniscatus 179, 184
lunulatus 179, 185
lutjanus 178, 185
madras 178, 186
malabaricus 179, 186
quinquelineatus 178, 186
rivulatus 179, 187
russelli 178, 187
vitta 178, 188
luzonius, *Upeneus* 381
Lycodontis tile 368
lysan, *Scomber* 167
Scomberoides 167
M
maccllellandii, *Bergmaceros* 372
machnata, *Elops* 367
Macilenticichthys indicus 379
macloti, *Carcharhinus* 367
macracanthus, *Ablybys* 375
macrocephalus, *Uropterygius* 368
macrocerus, *Ariosoma* 368
macrolepidotus, *Cynoglossus* 372, 389
Neoscopelus 372
macrolepis, *Liza* 382

- Parapocryptes* 386
macrolophus, *Coryphaenoides* 372
macronema, *Mullus* 218
parupeneus 216, 218
macronotocanthus, *Arius* 370
Macropharyngodon meleagris 383
macrophthalmus, *Otolithus* 214
Pennahia 214
macrops, *Neobythites* 373
macropterus, *Muraenichthys* 66
Macrorhamphosodes platycheilus 389
macrorhinus, *Loxodon* 367
macrospilos, *Epinephelus* 131, 136
Serranus 136
MACROURIDAE 27, 81, 372
macrura, *Thrysoidea* 368
Macrurus flabellispinis 82
maculata, *Gorgasia* 369
Mene 172
maculatum, *Anthias* 199
Pomadasys 198, 199
maculatus, *Balistes* 340
Bodianus 140
Canthidermis 340
Plectropomus 140
Psenes 388
Sillago 378
Zeus 172
maculosus, *Myrichthys* 368
madras, *Lutjanus* 178, 186
Mesoprion 186
magnificus, *Lo* 387
mahsena, *Lethrinus* 202, 203
Sciaena 203
Mahidolia mystacina 305
mahodadi, *Spottobrotula* 373
Makaira mazara 388
malabarica, *Thryssa* 370
malabaricus, *Carangoides* 161, 163
Epinephelus 131, 136
Holocentrus 136
Lutjanus 186
Scomber 163
Sparus 186
MALACANTHIDAE 378
Malacanthus brevirostris 378
hoedtii 378
latovittatus 378
malaccensis, *Periophthalmus* 308, 309
Malacocephalus laevis 373
MALACOSTEIDAE 371
Malacosteus niger 371
malayanus, *Diaphus* 372
Malthopsis luteus 374
mitrigera 374
manmina, *Gonialosa* 369
mappa, *Arothron* 346, 347
Tetrodon 347
margaritaceus, *Halichoeres* 266, 268
Julis 268
margaritifer, *Scolopsis* 209, 211
Scolopsoides 211
marginatus, *Dascyllus* 248
Halichoeres 266, 268
Pomacentrus 248
marmorata, *Gymnothorax* 64
marmoratus, *Achirus* 332
Pardachirus 332

- Uropterygius* 64
martensi, Doryichthys 103, 104
Syngnathus 103
maruadsi, Decapterus 379
mataafae, Halicampus 105
Corythoichthys 105
mate, Atule 160
Caranx 160
mauritianum, Arisoma 67
mauritanus, Leptocephalus 67
mazara, Makaira 388
megachir, Epinephelus 377
Megalaspis cordyla 166
MEGALOPIDAE 16, 56
Megalops cyprinoides 56
melampygus, Caranx 164
melanochir, Polynemus 259
melanoptera, Alepes 378
melanopterus, Carcharhinus 51
Hemigymnus 271
Labrus 271
melanostigma, Epinephelus 131, 137
melanura, Clupea 71
Sardinella 71
melanurus, Halichoeres 266, 269
Julis 269
melas, Plesiops 377
melastigma, Oryzias 374
melastoma, Ilisha 369
meleagris, Macropharyngodon 383
Ostracion 344
meliaris, Epinephelus 377
Melichthys indicus 340, 341
melinoptera, Liza 253
Mugil 253
Mene maculata 172
MENIDAE 36
Mephisto fraserbrunneri 389
merra, Epinephelus 131, 137
Mesoprion decussatus 181
madras 186
russelli 187
mesoprion, Nemipterus 380
metopias, Dentex 208
Nemipterus 208
meyeri, Chaetodon 228, 232
microcephalus, Ctenotrypauchen 387
Sicydium 310
Sicyopterus 310, 386
microdon, Cyclothone 371
Lethrinus 201, 203
Pristis 367
microlepis, Bathytroctes 371
Ptereleotris 385
micropectoralis, Saurida 371
Microphis brachyurus 375
insularis 375
microprion, Cephalopholis 128
Serranus 128
microps, Serrivomer 369
micropus, Halieutopsis 374
Micropus unipinna 118
microstoma, Polydactylus 383
midas, Escenius 384
miniata, Cephalopholis 126, 129
Perca 129
minuta, Gazza 172
Scomber 172

mitratus, *Pteroscirtes* 286, 287

mitrigera, *Malthopsis* 374

moluca, *Pempheris* 381

moluccanus, *Pseudodax* 383

moluccensis, *Upeneus* 219

Upenoides 219

MONACANTHIDAE 26, 335

Monacanthus curtiorhynchus 337

nematophorus 336, 337

pardalis 336

MONOCENTRIDAE 375

Monocentris japonicus 375

monoceros, *Aluterus* 389

MONODACTYLIDAE 33

Monodactylus argenteus 221

Monomitopus nigripinnis 373

Monotaxis grandoculis 380

MORIDAE 372

mrigala, *Cirrhinus* 370

Mugil buehanani 254

chanos 75

crenilabis 253

cunnesius 254

melinoptera 253

vaigiensis 254

mugil, *Kuhlia* 377

MUGILIDAE 28, 252, 382

MUGILOIDIDAE 37, 278, 384

MULLIDAE 31, 381

Mulloides flavolineatus 215

vanicolensis 381

Mullus barberinus 216

bifasciatus 217

cyclostomus 215

flavolineatus 218

indicus 218

macronema 218

vittatus 221

multibarbata, *Brotula* 82

multidens, *Pristipomoides* 379

multifilis, *Dicrolena* 373

Gadomus 373

multitaeniata, *Lepidamia* 378

Muraena bengalensis 57

colubrina 66

fimbriatus 60

flavimarginatus 61

picta 63

richardsoni 61

MURAENESOCIDAE 369

Muraenichthys macropterus 66

shultzei 368

MURAENIDAE 14, 58, 368

Muraenophis undulatus 62

murdjan, *Myripristis* 94

Sciaena 94

MYCTOPHIDAE 372

MYCTOPHIFORMES 372

MYLIOBATIDAE 11, 55

myops, *Salmo* 81

Trachinocephalus 81

myriaster, *Bothus* 388

Myrichthys colubrinus 66

maculosus 367

Myripristis adusta 93

adustus 93

murdjan 93, 94

mystacina, *Gobius* 305

- Mahidolia* 305
mystax, Clupea 74
Thryssa 74
N
nalua, Ambassis 376
narinari, Aetobatus 55
Raja 55
Narke 52
Naseus vlamingii 316
Naso vlamingii 316
nasus, Nematalosa 369
nasutus, Halieutopsis 374
naucrates, Echeneis 156
navigatoris, Tydemania 389
nebulosa, Echidna 59
Saurida 371
nebulosus, Halichoeres 266, 269
Julis 269
Lethrinus 202, 204
Sciaena 204
neglecta, Scorpaena 376
Nematalosa nasus 369
nematophorus, Monacanthus 336, 337
NEMICHTHYIDAE 368
Nemichthys scolopaceus 368
NEMIPTERIDAE 45, 380
Nemipterus bleekeri 206
hexodon 380
japonicus 206, 207
luteus 206, 207
mesoprion 380
metopias 206
nemurus 381
randalli 381
tolu 206, 208
nemurus, Nemipterus 381
Neobythites macrops 373
Neoniphon sammara 94
Neopomacentrus cochinensis 382
NEOSCOPELIDAE 372
Neoscopelus macrolepidotus 372
Nezumia brevirostris 373
investigatoris 373
semiquincunciata 373
nielsenii, Diaphus 372
niger, Apistus 115
Lamoprogrammus 373
Malacosteus 371
Odonus 389
Parastrumateus 379
Scarus 275, 277
Tetraroge 115, 116
nigra, Echidna 368
Halieutaea 374
nigrescens, Halichoeres 266, 270
nigricauda, Acanthurus 313, 314
nigricaudis, Dicrolena 373
nigripinnis, Monomitopus 373
nigrofasciatus, Nomeus 170
Seriolina 170
nigropunctatus, Arothron 346, 347
Tetrodon 347
niphonia, Pristigenys 378
NOMEIDAE 388
Nomeus nigrofasciatus 170
NOTACANTHIFORMES 368
notatus, Abudedefduf 382
notopsis, Halichoeres 383

novae-zeelandiae, *Brachypleura* 389

novemfasciatus, *Ostorhynchus* 378

O

obesus, *Carcharhinus* 51

Thynnus 388

Triaenodon 51

oblongus, *Carangoides* 161, 163

Caranx 163

Gerres 193, 195

obscura, *Heteroconger* 369

Psenopsis 388

obsoleta, *Sciaena* 204

obsoletus, *Lethrinus* 202, 204

obtusata, *Sphyræna* 255, 257

ocellaris, *Amphiprion* 243, 245

ocellatus, *Apogon* 152

Apogonichthys 152

octodon, *Scarus* 383

octostigmatus, *Callionymus* 385

oculeus, *Synodus* 372

oculus, *Heteromycteris* 332

Solea 332

Odontamblyopus rubicundus 387

Odonus niger 389

Oedalechilus labiosus 382

OGOCEPHALIDAE 374

Oligolepis acutipinnis 386

oligolepis, *Cypselurus* 86

Exocoetus 86

Onigocia 119

Platycephalus 119

oligolinx, *Rhizoprionodon* 367

Olistus hedlandensis 162

Omobranchus elongatus 385

punctatus 385

rotundiceps 385

zebra 385

ongus, *Epinephelus* 132, 138

Holocentrus 138

Onigocia oligolepis 119

opercularis, *Callionymus* 290

Eleutherochir 290

OPHICHTHIDAE 13, 65, 368

Ophichthus apicalis 368

Ophichthys playfairii 65

OPHIDIIDAE 16, 82, 373

OPHIDIIFORMES 16, 82, 373

Ophieleotris aporos 293

Ophiocara porocephala 294

Ophiocephalus punctatus 327

Ophisurus semicinctus 65

Opisthopterus tardoore 369

OPISTOGNATHIDAE 383

Opistognathus annulata 384

rosebergi 384

Oplopomus caninoides 306

oplopomus 305, 306

oplopomus, *Gobius* 306

orbicularis, *Apogon* 154

Chaetodon 226

Platax 226

Sphaeramia 154

orbis, *Ephippus* 381

Tripteron 381

ORECTOLOBIDAE 10, 49

orientalis, *Anthias* 198

Channa 326, 327

Dactyloptena 108

- Dactylopterus* 108
Euryglossa 389
Plectorhinchus 198
Sarda 388
ornatus, *Gobius* 305
Istigobius 305
Lethrinus 201, 205
Oryzias melastigma 374
ORYZIIDAE 374
OSTEICHTHYES 10, 56, 367
Osteichthys japonicus 375
Ostorhynchus novemfasciatus 378
OSTRACIIDAE 25, 343, 390
Ostracion cornutus 343
cubicus 344
meleagris 344
Otolithus macrophthalmus 214
ruber 214
oualensis, *Pempheris* 222, 223
Oxuderces dentatus 386
Oxybeles homei 83
oxycephalus, *Plesiops* 377
Oxymonacanthus longirostris 337
Oxyurichthys papuensis 306, 307
talwari 386
tentacularis 306, 307
oyena, *Gerres* 194, 195
Labrus 195
P
palembangensis, *Arothron* 346, 347, 348
Tetrodon 347
panchax, *Aplocheilus* 91
Exyox 91
pantherinus, *Bothus* 328
Rhombus 328
pappenheimi, *Zenarchopterus* 374
papuensis, *Gobius* 307
Oxyurichthys 307
para, *Alepes* 159, 160
Caranx 159
Paracaesio sordidus 379
xanthura 379
Parachaeturichthys polynema 307
Paracirrhites forsteri 252
paradoxus, *Fistularia* 101
Solenostomus 101
Paragobiodon echinocephalus 386
parallelus, *Coelorinchus* 372
Paramonacanthus curtiorhynchus 337
Parapercis clathrata 278, 279
cylindrica 384
hexophthalma 278, 279
tetracanthus 278, 279
xanthozona 278, 280
Paraplagusia bilineata 331
Parapocryptes macrolepis 386
Parascorpaena picta 110
Parastromateus niger 379
Pardachirus marmoratus 332
pavoninus 332, 333
pardalis, *Cantherhinus* 336
Monacanthus 336
Parenchelyurus hepburni 385
Parluciosoma daniconius 76
parsia, *Liza* 382
Parupeneus barberinus 216
bifasciatus 216, 217
cinnabarinus 216, 217

cyclostomus 216, 217
indicus 216, 218
macronema 216, 218
pleurostigma 216, 219
rubescens 381
patoca, *Chelonodon* 350
Tetrodon 350
pavoninoides, *Cryptocentrus* 386
pavoninus, *Achirus* 333
Pardachirus 332, 333
PEGASIDAE 20, 97, 375
PEGASIFORMES 20, 97, 375
Pegasus volitans 97
pelamis, *Katsuwonus* 388
Pelates quadriliniatus 377
Pellona dayi 369
ditchela 70
PEMPHERIDAE 37, 381
Pemppheris moluca 381
oualensis 222, 223
vanicolensis 222
Pennahia macrophthalmus 212
pentadactylus, *Corphaena* 274
Xyrichthys 274
Perca areolata 132
cirrrosa 113
fasciata 134
fuscoguttata 135
louti 141
lunulata 185
miniata 129
picta 196
praslin 96
roga 125

sexlineata 141
summana 135
PERCIFORMES 27, 121, 376
Percis hexophthalma 279
xanthozona 280
PERCOPHIDAE 384
Percam urodetam 129
perdix, *Apogonichthys* 378
Perioglossus raoi 385
Periophthalmodon schlosseri 386
tredecemradiatus 386
Periophthalmus argentilineatus 308
dipus 386
kalolo 308
malaccensis 308, 309
variabilis 386
periophthalmus, *Blenniella* 284
Salarias 284
Peristedion serrulatum 376
personatus, *Scolopsis* 209, 212
perspicillatus, *Dischistodus* 249
Pomacentrus 249
pessuliferus, *Plectropomus* 140
petersoni, *Ventrifossa* 373
petimba, *Fistularia* 99
phasa, *Setipinna* 370
PHOTICHTHYIDAE 371
Photostomias guernei 371
Phoxocampus tetraphthalmus 107
Physiculus roseus 372
picta, *Muraena* 63
Parascorpaena 110
Perca 196
Scorpaena 110

- Siderea* 63
pictum, *Diagramma* 196
pictus, *Diargamma* 380
piger, *Brotulina* 373
Pimelepterus lembus 224
Pinjalo pinjalo 379
pinnatus, *Chaetodon* 227
Platax 226, 227
pinnulatus, *Cirrhitus* 251
Labrus 251
Pipidonia quinquecincta 303
pisang, *Caesio* 192
Pterocaesio 191, 192
Pisodonophis cancrivorus 368
plagiotaenia, *Carangoides* 378
Plagusia lida 330
Platax orbicularis 226
pinnatus 226, 227
PLATYCEPHALIDAE 22, 118, 376
Platycephalus carbunculus 120
corododilus 119
indicus 120
oligolepis 119
tuberculata 120
platycheilus, *Macrorhamphosodes* 389
platypterus, *Istiophorus* 388
platyrhynchus, *Bembrops* 384
playfairii, *Cirrhimuraena* 65
Ophichthys 65
plebeius, *Chaetodon* 228, 233
Polydactylus 258
Polynemus 258
Plectropomus maculatus 140
pessuliferus 140
Plectorrhinchus chaetodonoides 197
diagrammus 380
gibbosus 197
orientalis 197, 198
rayi 380
PLESIOPIDAE 38, 142
Plesiops caeruleolineatus 143
corallicola 143
melas 377
oxycephalus 377
PLEURONECTIDAE 389
PLEURONECTIFORMES 12, 327, 388
Pleuronectis arsius 329
bilineata 331
erumei 328
pleurostigma, *Parupeneus* 216, 219
Upeneus 219
PLOTOSIDAE 23, 78, 370
Plotosus canius 370
lineatus 78
Poecilia fusca 292
Poecilopsetta colorata 389
praelonga 389
poecilopterus, *Apogonichthys* 378
poeti, *Gerres* 194, 195
Polycaulus uranoscopus 117
Polydactylus heptadactylus 258
kuru 383
microstoma 383
plebeius 258
Polyipnus spinosus 371
Polymixia japonicus 375
POLYMIXIIDAE 375
polymnus, *Amphiprion* 382

polynema, Parachaeturichthys 307

POLYNEMIDAE 27, 383

Polynemus heptadactylus 258

melanochir 259

plebeius 258

POMACANTHIDAE 34, 237, 381

Pomacanthus annularis 237

imperator 237, 238

semicirculatus 237, 238

xanthometopon 381

POMACENTRIDAE 30, 240, 382

Pomacentrus bifasciata 382

lividus 250

marginatus 248

perspicillatus 249

prosoptaenia 381

trimaculatus 249, 250, 382

tripunctatus 249

Pomadasys argenteus 380

argyreus 198

furcatus 380

kaakan 198, 199

maculatum 198, 199

Porocephala, Eleotris 294

Ophiocara 294

praelonga, Poecilopsetta 389

prasiognathos, Scarus 383

praslin, Perca 96

Sargocentron 96

Premnas biaculeatus 250

PRIACANTHIDAE 46, 146, 377

Priacanthus blochii

hamrur 145

Priolepis semidoliatus 309

Prionacea glauca 367

Prionobutis koilomatadon 385

PRISTIDAE 367

PRISTIGASTERIDAE 369

Pristigenys niphonia 378

Pristipoma argyreus 198

kaakan 199

Pristipomoides multidentis 379

sieboldii 380

typus 380

Pristis microdon 367

zijosron 367

PROSCYLLIDAE 367

prosopotaenia, Pomacentrus 382

Psenes maculatus 388

Psenopsis obscura 388

PSETTODIDAE 47, 328

Psettodes erumei 328

Pseudapocryptes lanceolatus 386

Pseudodax moluccanus 383

Pseudorhombus arsius 329

dupliocellatus 388

elevatus 329, 330

Pseudobalistes flavomarginatus 389

PSEUDOCHROMIDAE 38, 142, 377

Pseudochromis cyanotaenia 142

fuscus 377

xanthochir 377

Pseudogobius javanicus 386

Pseudotriacanthus strigilifer 335

Ptereleotris andamanensis 385

microlepis 385

Pterocaesio chrysozona 192

pisang 191, 192

tessellata 191, 192
tile 191, 193
Pterois antennata 111
brachypterus 109
radiata 111
volitans 111, 112
zebra 110
Pteroscirtes bankanensis 385
breviceps 286, 287
mitratus 286, 287
pterotum, Benthosema 372
puelleides, Siganus 387
punctata, Chaetodon 226
Drepane 226
punctulata, Fowleria 154
punctatum, Chiloscylidium 49
punctatus, Channa 327
Omobranchus 327, 385
Ophiocephalus 327
punctulatus, Apogon 154
puntang, Exyrias 300
Gobius 300
purpureum, Thalassoma 383
puta, Terapon 377
putamiae, Sphyræna 382
Pygoplites diacanthus 239
Q
quenie, Sphyræna 383
quadricristatus, Coelorhynchus 372
quadrifasciatus, Apogon 147, 151
quadrilineatus, Pelates 377
ostorhynchus 151
quadrinaculatus, Herklotsichthys 369
quagga, Aesopia 333

Zebrias 333
quinquecincta, Gobiopsis 303
Pipidonia 303
quinquelineatus, Cheilopdiptherus 53
Holocentrus 186
Lutjanus 178, 186
quinquestrigatus, Gobiodon 386
quinquevittatum, Thalassoma 383
quoyanus, Epinephelus 131, 138
Serranus 138

R

RACHYCENTRIDAE 32, 156
Rachycentron canadus 156
radcliffei, Eridacnis 367
radiata, Pterois 111
Raja narinari 55
Sephen 55
RAJIDAE 367
RAJIFORMES 10, 52, 367
ramcarati, Coilia 370
randalli, Nemipterus 381
raniceps, Coloconger 368
Diplacanthopoma 373
raoi, Perioglossus 385
Rastrelliger brachysoma 324, 325
faughni 324, 325
kanagurta 324, 325
rayi, Plectorhynchus 340
rectangulus, Balistes 342
Rhinecanthus 341, 342
regani, Diaphus 372
reichei, Acentrogobius 296, 297
Favonigobius 386
Gobius 297

Remora remora 378
reticularis, *Arothron* 346, 348
reyi, *Andamia* 384
Rhabdoblennius snowi 287
Rhinecanthu aculeatus 341
 rectangulus 341, 342
 verrucosus 341, 342
 RHINOBATIDAE 12, 52, 367
Rhinobatos granulatus 53
Rhizoprionodon acutus 51
 oligolinx 366
rhodochrous, *Sebastapistes* 376
Rhombus pantherinus 328
Rhynchobatus djiddensis 367
richardsoni, *Gymnothorax* 61
 Muraena 61
riggsi, *Lepidotrigia* 376
rivolina, *Seriola* 379
rivulata, *Diacope* 187
rivulatus, *lutjanus* 187
 Scarus 383
robustus, *Choerodon* 383
rochei, *Auxis* 322, 323
 Scomber 323
rogaa, *Aethaloperca* 125
 Perca 125
rohita, *Labeo* 370
romeri, *Stigmatogobius* 386
rosebergi, *Opistognathus* 384
roseus, *Physiculus* 372
rotundiceps, *Omobranchus* 385
Roulania squamilatera 371
ruber, *Halicmetus* 374
 Johnius 214

Otolithus 214
rubescens, *Parupeneus* 381
 Steinegeria 176
rubicundus, *Odontamblyopus* 387
rubra, *Sciaena* 96
rubrioperculatus, *Lethrinus* 380
rubroviolaceous, *Scarus* 275, 277
rubrum, *Sargocentron* 96
rupestris, *Kuhlia* 377
ruppelliae, *Dalophis* 62
 Gymnothorax 62
russelli, *Decapterus* 379
 Dendrophysa 213
 Lutjanus 178, 187
 Mesoprion 187
 Umbrina 213
rutilans, *Aphareus* 213
 Labrus 177

S

sadanundio, *Gobius* 311
 Stigmatogobius 311
Salarias bilitonensis 286
 bleekeri 288
 cyanostigma 283
 dussumieri 285
 fasciatus 288
 fuscus 282
 guttatus 385
 hasselti 385
 heteropterus 282
 lineatus 286
 periophthalmus 284
 striatus 285
Salmo tumbli 80

- myops* 81
SALMONIFORMES 370
Samaris cristatus 389
sammara, *Holocentrum* 94
Neoniphon 94
Sciaena 94
sangiensis, *Apogon* 378
Sarda orientalis 388
Sardinella brachysoma 71
fimbriata 369
gibbosa 369
longiceps 369
melanura 71
siram 68
Sargocentron caudimaculatum 95
ittodai 95
praslin 95, 96
rubrum 95, 96
spiniferum 95, 97
Satyrichthys investigatoris 376
Saurida gracilis 79
micropectoralis 371
nebulosa 371
tumbil 80
undosquamis 80
Saurus gracilis 79
undosquamis 80
savala, *Lepturacanthus* 321
Trichuirus 321
scaber, *Grammoplites* 376
scapularis, *Julis* 270
Halichoeres 270
SCARIDAE 31, 275, 383
Scarus dubius 275
enneacanthus 383
frenatus 275, 276
ghobban 275, 276
gibbus 383
globiceps 383
japonensis 383
niger 275, 277
octodon 383
prasiognathos 383
rivulatus 383
rubroviolaceous 275, 277
sordidus 383
taeniurus 275, 278
Scarteloas cantoris 310
SCATOPHAGIDAE 35, 227
Scatophagus argus 227
schlosseri, *Periophthalmodon* 386
Sciaena argentimaculata 180
bohar 181
cinerascens 225
fluviflamma 182
formosa 128
gibbus 183
hamrur 145
harak 202
jarbua 144
kasmira 184
mahsena 203
murdjan 94
nebulosus 204
obsoleta 204
rubra 96
sammara 94
spinifera 97

- SCIAENIDAE 43, 381
Sciena jaculator 224
scleratus, *Lagocephalus* 350
Tetrodon 350
Scoliodon walbeehmi 51
scolopaceus, *Nemichthys* 368
Scolopsis bilineatus 209
bimaculatus 211
cancellatus 209, 210
ciliatus 209, 210
dubiosus 209, 211
frenatus 381
ghanam 381
leucotaenia 209, 211
margaritifer 209, 211
personatus 209, 212
xenochorus 381
Scolopsoides margaritifer 211
Scomber brachysoma 324
carangus 164
cordyla 166
crumenophthalmus 169
djedaba 159
equula 176
kanagurta 325
lactarius 155
lysan 167
malabaricus 163
minuta 172
rochei 323
speciosus 166
thazard 323
Scomberoides commersonnianus 167
lysan 167
itala 167, 168
tol 167, 168
Scomberomorus commersonii 388
guttatus 388
SCOMBRIDAE 28, 322, 387
Scorpaena antennata 111
didactyla 116
guamensis 112
neglecta 376
picta 110
strongia 114
SCORPAENIDAE 22, 108, 375
SCORPAENIFORMES 21, 108, 375
Scorpaenodes guamensis 112
smithi 376
Scorpaenopsis cirrhosa 113
gibbosa 113
venosa 76
scriptus, *Aluterus* 336
Balistes 336
sculptus, *Choeroichthys* 103
Doryichthys 103
scutatus, *centniscus* 100
SCYLIORHINIDAE 366
sealei, *Carcharhinus* 367
sebae, *Amphiprion* 382
Sebastapistes rhodochrous 376
strongia 114
seheli, *Valamugil* 381
selangkat, *Anodontostoma* 369
Selar boops 169
crumenophthalmus 169
Selaroides leptolepis 170
semicinctus, *Leiuranus* 65

- Ophisurus* 65
semicirculatus, *Holacanthus* 238
Pomacanthus 237, 238
semidoliatus, *Gobius* 309
Priolepis 309
semiquincunciata, *Nezumia* 373
semipunctatus, *Asterropteryx* 298
sephen, *Hypolophus* 55
Raja 55
septumfasciatus, *Abudefduf* 241
Glyphisodon 241
Symphurus 389
Seriola bipinnulata 165
riolina 379
Seriolina nigrofasciatus 170
SERRANIDAE 47, 123, 377
Serranus altivelis 130
biguttatus 180
cyanostigma 127
erythrurus 133
lemniscatus 184
longispinis 135
macrospilos 136
microprion 128
quoyanus 138
sonnerati 129
squamipinnis 124
vitta 188
Serrivomer microps 369
SERRIVOMERIDAE 369
serrulatum, *Peristedion* 376
Seterches guentheri 376
longimanus 376
setifer, *Gerromorpha* 380
Xiphasia 289
setigerus, *Lophiomus* 373
Trichonotus 384
Setipinna phasa 370
tenuifilis 370
setirostris, *Clupea* 74
Thryssa 74
Setula armata 161
sexatilis, *Abudefduf* 382
sexfasciatus, *Caranx* 165
sexguttatus, *Eleotriodes* 292
Eleotris 292
sexlineata, *Perca* 141
sexlineatus, *Grammistes* 141
shultzei, *Muraenichthys* 368
Siaena murdjan 34
rubra 96
sammara 94
spinifera 97
Sicydium microcephalus 310
Sicyopterus microcephalus 310, 386
Siderea picta 63, 368
thrysoidea 368
sieboldii, *Pristipomoides* 380
SIGANIDAE 29, 317, 387
Siganus argenteus 387
cancellatus 318
corallinus 387
fuscescens 387
guttatus 318, 319
javus 318, 319
labyrinthodes 387
puelloides 387
spinus 318, 319

stellatus 318, 320
vermiculatus 318, 320
virgatus 318, 321
Sihama, Atherina 155
Sillago 155
 SILLAGINIDAE 40, 378
Sillago cho 378
 maculatus 378
 sihama 155
 SILURIFORMES 23, 76
Silurus batrachus 77
 fossilis 77
 lineatus 78
simum, Hephthocara 373
sinensis, Bostrichthys 291
 Bostrychus 291
Singularis, Heniochus 235, 236
siram, Amblygaster 68
 Clupea 68
 Sardinella 68
sloani, Chauliodus 371
smithi, Kraemicus 387
 Scorpaenodes 376
snowi, Blennius 287
 Rhabdoblennius 287
solandri, Acanthocybium 387
 Canthigaster 349
 Tetrodon 349
Solea bleekeri 333
 oculus 332
Soleichthys heterorhinos 389
 SOLEIDAE 331, 389
 SOLENOSTOMIDAE 19, 100
Solenostomus cyanopterus 100, 101

paradoxus 101
sonnerati, Cephalopholis 126, 129
 serranus 129
sordidus, Abudedefduf 242
 chaetodon 242
 Paracaesio 379
 Scarus 383
sorrah, Carcharhinus 367
Sorsogona tuberculata 120
 SPARIDAE 44, 200
Sparus anchorago 264
 berda-200
 chlorurus 261
 cuning 189
 fasciatus 262
 insidiator 264
 japonicus 207
 malabaricus 186
 spinus 390
 stellatus 320
speciosus, Gnathanodon 166
 Scomber 166
spicifer, Hippichthys 106
 Syngnathus 106
splendens, Equula 175
 Leiognathus 175
Sphaeramia orbicularis 154
Sphyræna barracuda 255
 chrysotaenea 382
 flavicauda 255, 256
 forsteri 382
 jello 382
 langsar 255, 256
 obtusata 255, 257

- putamiae* 382
qenie 383
SPHYRAENIDAE 28, 255, 382
SPHYRNIDAE 367
spilotoceps, *Epinephelus* 131, 139
spinifera, *Sciaena* 97
spiniferum, *Sargocentron* 97
spinosus, *Polyipnus* 371
spinus, *Siganus* 318, 319
Sparus 319
Spottobrotula mahodadi 373
Squalus fasciatus 50
squamilatera, *Roulenia* 371
squamipinnis, *Anthias* 124
Serranus 124
stamineus, *Awaos* 299
Gobius 299
starksi, *Cypselurus* 374
Stegastes livides 382
Stegostoma fasciatus 50
Steinegeria rubescens 176
steinitzii, *Cocotropus* 376
stellatus, *Abalistes* 339
Arothron 346, 348
Balistes 339
Siganus 318, 320
Sparus 320
Tetrodon 348
Stenogobius gymnopomus 310
STERNOPTYCHIDAE 371
Stethojulis strigiventer 272
trilineata 272
stewartii, *Channa* 388
Stigmatogobius hoevenii 386
romeri 386
sadanundio 311
Stolephorus commersonii 72
indicus 370
waitei 370
STOMIIFORMES 371
striatus, *Acanthurus* 315
Ctenochaetus 315
Entomacrodus 285
Salarias 285
strigatus, *Aeoliscus* 99
Amphisile 99
strigilifer, *Pseudotriacanthus* 335
Triacanthus 335
strigiventer, *Julis* 272
Stethojulis 272
strigosus, *Ctenochaetus* 387
strongia, *Scorpaena* 114
Sebastapistes 114
strongylura, *Belone* 89
Strongylura gigantea 90
strongylura 89
subducens, *Congrogadus* 387
suborbitalis, *Diaphus* 372
subviridis, *Liza* 382
sadanundio, *Stigmatogobius* 311
Sufflamen chrysopterus 342
sulphureus, *Upeneus* 219, 220
sumatranus, *Arius* 370
summana, *Perca* 135
surinamensis, *Lobotes* 380
Symphurus septumstriatus 389
woodmasoni 389
Synagris bleekeri 206

Synanceia alula 376

verrucosa 117

SYNANCEIIDAE 22, 116, 376

SYNGNATHIDAE 19, 101, 375

SYNGNATHIFORMES 18, 98, 375

Syngnathoides biaculeatus 107

Syngnathus biaculeatus 107

dactyliophorus 104

haematopterus 102

martensi 103

specifer 106

tetrophthalmus 107

SYNODONTIDAE 13, 78, 371

Synodus englemani 371

hoshinonis 371

oculeus 372

variegatus 80

T

tade, *Liza* 382

taenianotus, *Ablabys* 375

Taenioides angularis 387

cirratus 311, 387

taeniola, *Gavialiceps* 369

taeniurus, *Scarus* 275, 278

tala, *Chironemus* 168

Scomberoides 167, 168

talabon, *Congresox* 369

talamparoides, *Carangoides* 379

talwari, *Oxyurichthys* 386

tapeinosoma, *Arnoglossus* 388

tardoore, *Opisthopterus* 369

Taurichthys varius 236

tauvina, *Epinephelus* 377

temmincki, *Aulacocephalus* 377

temminckii, *Hypoatherina* 374

tentacularis, *Gobius* 307

Oxyurichthys 306

Tentoriceps cristatus 387

tenuifilis, *Setipinna* 370

Terapon jarbua 144

puta 377

theraps 144, 145

TERAPONIDAE 47, 144

tessellata, *Pterocaesio* 191, 192

testudineus, *Anabas* 326

Anthias 326

Tetrodon 348

tetracanthus, *Labrus* 279

Parapercis 278, 279

TETRAODONTIDAE 25, 345, 390

TETRAODONTIFORMES 24, 334, 389

Tetrapterus audax 388

Tetraroge barbata 115

niger 115, 116

Tetrodon hypselogenion 345

immaculatus 346

mappa 347

nigropunctatus 347

palembangensis 347

patoca 350

scleratus 350

solandri 349

stellatus 348

testudineus 348

tetrophthalmus, *Phoxocampus* 107

Syngnathus 107

Tetrosomus gibbosus 319

Teuthis javus 319

thailandiae, *Anodontostoma* 369
thalassinus, *Arius* 370
Thalassoma herbraicum 383
 jansanii 273
 lunare 273
 purpureum 383
 quinquevittatum 383
thazard, *Auxis* 322, 323
 Scomber 323
theraps, *Terapon* 144, 145
thetidis, *Dasyatis* 54
thoracata, *Escualosa* 369
thrysoidea, *Siderea* 368
Thryssa baelama 73
 hamiltonii 73
 malabarica 73, 370
 mystax 73, 74
 setirostris 73, 74
Thynnus affinis 323
 alalunga 388
 albacares 388
 bicarinatus 324
 obesus 388
 tonggol 380
Thyrsoides macrura 368
Thysanophrys carbunculus 120
tigrinus, *Ichthyophis* 64
 Uropterygius 164
tile, *Caesio* 193
 Lycondontis 368
 Pterocaesio 191, 193
tol, *Chironemus* 168
 Scomberoides 167, 168
toli, *Alausa* 70

Hilsa 70
tolu, *Dentex* 208
 Nemipterus 208
tonggol, *Thynnus* 388
TORPEDINIDAE 11, 52
Toxotes chatareus 223
 jaculator 223, 224
TOXOTIDAE 42, 223
Trachinocephalus myops 81
trachinoides, *Apistus* 115
 Vespiculà 115
Trachinotus baillonii 171
 blochii 170, 171
tragula, *Upeneus* 219, 220
TRAYPAUCHENIDAE 387
tredecemradiatus, *Periophthalmodon* 386
TRIACANTHIDAE 26, 336, 389
TRIACANTHODIDAE 389
Triacanthus biaculeatus 334
 brevirostris 389
 strigilifer 335
Triaenodon obesus 51
triangularis, *Drombus* 386
triangulum, *Chaetodon* 228, 233
triangulus, *Alticus* 384
TRICHIURIDAE 29, 321, 387
TRICHONOTIDAE 384
Trichonotus setigerus 384
Trichurus lepturus 387
 savala 321
trifasciatus, *Callogobius* 386
 Chaetodon 234
TRIGILIDAE 376
trigloides, *Tripterygion* 280

trilineata, *Labrus* 272
Stethojulis 272
trilobatus, *Cheilinus* 262
trimaculatus, *Apogon* 146, 151
Dascyllus 248, 249
Hippocampus 375
Pomacentrus 249, 381
triestegus, *Acanthurus* 313, 314
Chaetodon 314
Tripteronodon orbis 381
TRIPTERYGIIDAE 39, 280
Tripterygion fasciatum 384
trigloides 280
tripunctatus, *Pomacentrus* 249, 250
Tropidichthys bennetti 349
Trygon kuhlii 54
gerrardi 54
Trypauchen vagine 387
tuberculata, *Platycephalus* 120
Sorsogona 120
tumbil, *Salmo* 80
Saurida 79, 80
Tydemanina navigatoris 389
Tylosurus crocodilus 90
gigantea 90
typus, *Ketengus* 370
Pristipomoides 380
U
Umbrina amblycephalus 213
russelli 213
undosquamis, *Saurida* 79, 80
saurus 80
undulatus, *Balistapus* 339
Balistes 339

Cheilinus 263
Gymnothorax 62
Muraenophis 62
undulosus, *Bodianus* 139
Epinephelus 130, 139
unicolor, *Gymnosarda* 387
unimaculata, *Chrysiptera* 247
Glyphisodon 247
unipinna, *Caracanthus* 118
Micropus 118
Upeneus cinnabarinus 217
luzonius 381
moluccensis 218
pleurostigma 218
sulphureus 218, 220
tragula 218, 220
vittatus 218, 221
Upenoides moluccensis 219
uranoscopus, *Polycaulus* 117
urodeta, *Cephalopholis* 126, 129
urodetam, *percam* 129
Uropterygius concolor 63
macrocephalus 368
marmoratus 63, 64
tigrinus 63, 64
urotaenia, *Ambassis* 123
V
vagabundus, *Chaetodon* 229, 234
vagine, *Trypauchen* 387
vaigiensis, *Abudefduf* 242
Centrogenys 377
Glyphysodon 242
Kyphosus 381
Liza 253

Mugil 254
Valamugil buchanani 254
 cunnesius 254
 seheli 381
vanicolensis, Mulloides 381
 Pempheris 222
variabilis, Periophthalmus 386
variegatus, Lethrinus 380
 Synodus 80
Variola louti 141
varius, Heniochus 235, 236
 Taurichthys 236
velifer, Acanthurus 317
veliferum, Zebrasoma 317
venosa, Scorpaenopsis 376
Ventrifossa petersoni 373
vermiculatus, Amphacanthus 320
 Entomacrodus 384
 Siganus 318, 320
verrucosa, Synanceia 117
verrucosus, Balistes 342
 Rhinecanthus 341, 342
VERTEBRATA 10
Vespicula depressiformis 114
 trachinoides 115
virescens, Aprion 177
virgatus, Amphacanthus 321
 Siganus 318, 321
viridescens, Balistes 340
 Balistoides 340
 Calatomus 383
viridipunctatus, Acentrogobius 296, 297
 Gobius 297
vitta, Lutjanus 178, 188

Serranus 188
 vittatus, Mullus 221
 Upeneus 219, 221
 vlamingii, Naseus 316
 Naso 316
 volitans, Exocoetus 370
 Gasterosteus 112
 Pegasus 97
 Pterois 112
vulpes, Albula 57
 esox 57

W

waitei, Stolephorus 370
walbeehmi, Scoliodon 51
wheeleri, Carcharias 367
woodmasoni, Symphurus 389
woodsii, Gobiopsis 303

X

xanthochilus, Lethrinus 201, 205
xanthochir, Pseudochromis 377
xanthometopon, Pomacanthus 381
xanthonota, Caesio 190
xanthopterus, Acanthurus 313, 315
xanthura, Paracaesio 379
xanthozona, Parapercis 278

Percis 280

xenochorus, Scolopsis 381
Xenoploactis caudis 376
Xiphasia setifer 289
Xiphias gladius 388

XIPHIIDAE 388

Xyrichthys lecluse 264
 pentadactylus 274

Y*Yarrella corythaeolum* 371*Yongeichthys criniger* 312**Z***Zanclus canescens* 316*zebra, Dendrochirus* 110*Echidna* 59*Gymnothorax* 59*Omobranchus* 385*Pterois* 110*Zebrasoma veliferum* 317*Zebrias quagga* 333*Zenarchopterus buffonis* 88*gilli* 88, 89*pappenheimi* 374*Zeus ciliaris* 158*maculatus* 172*zijosron, Pristis* 367*zonura, Eviota* 385

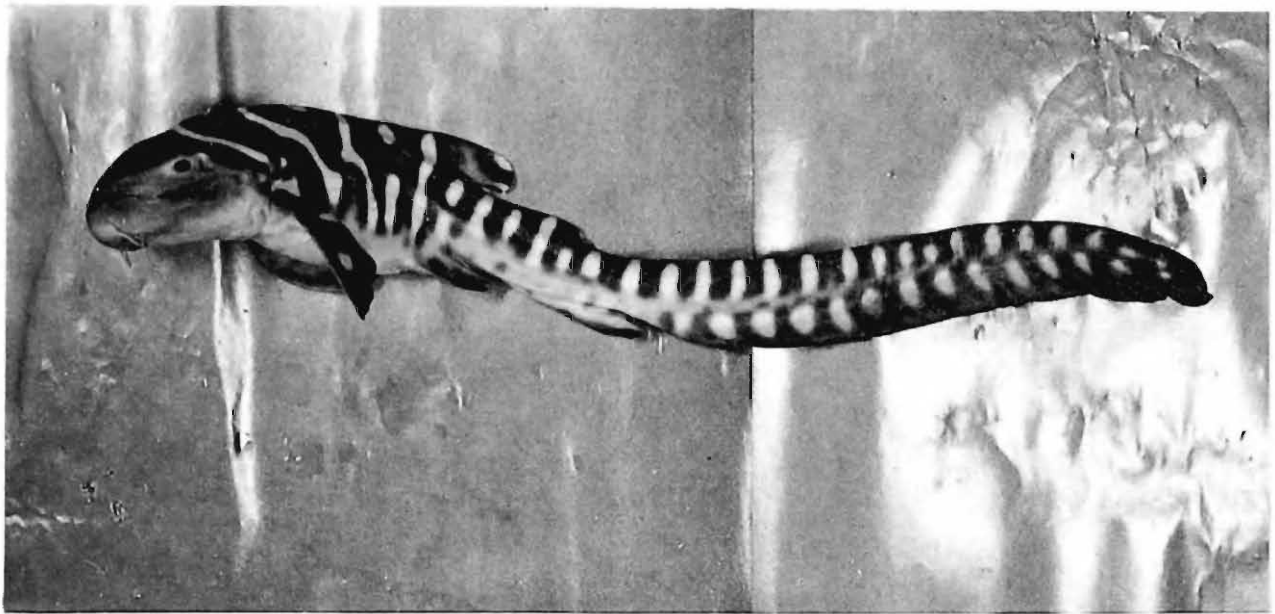


Fig. 114 *Stegostoma fasciatum*

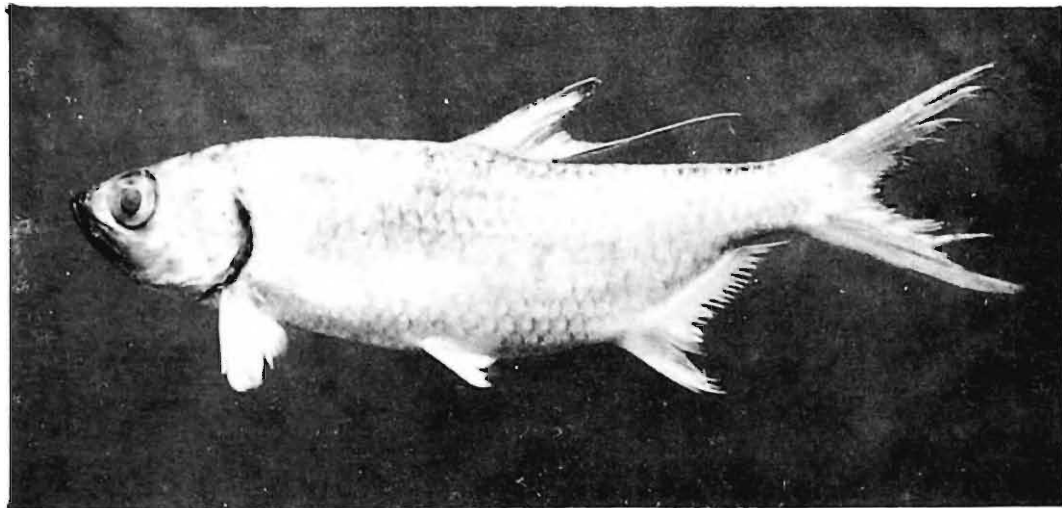


Fig. 115 *Mehalops cyprinoides*

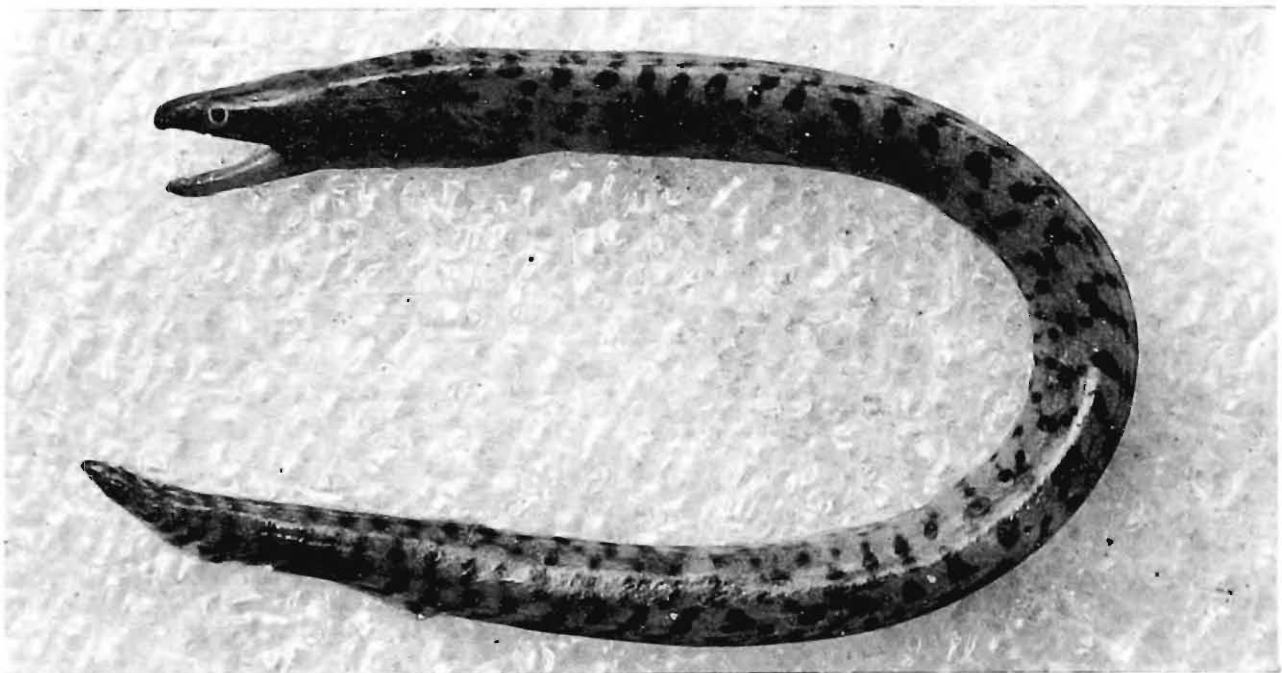


Fig. 116 *Gymnothorax fimbriatus*



Fig. 117 *Gymnothorax ruppelliae*



Fig. 118 *Myrichthys colubrinus*

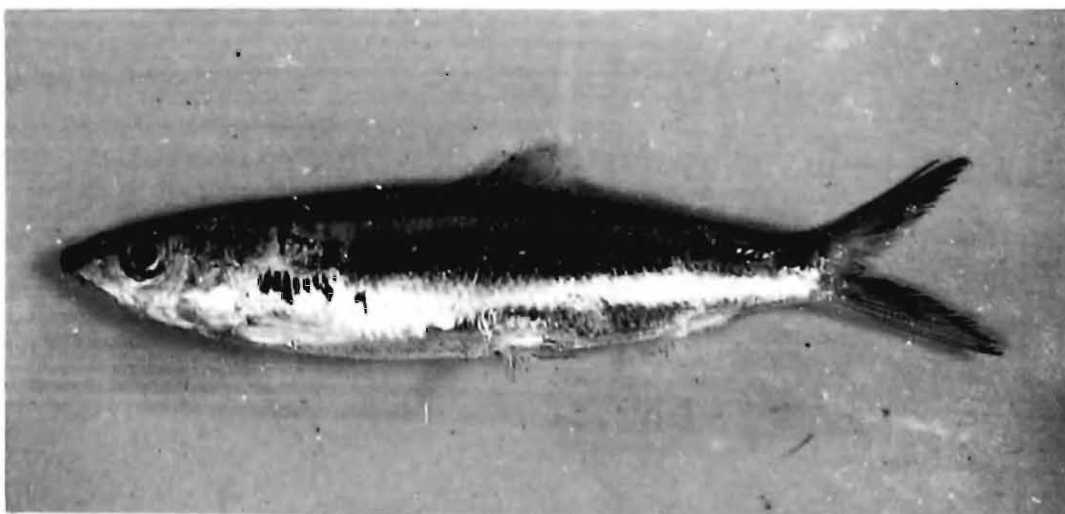


Fig. 119 *Dussemieria elopsoides*

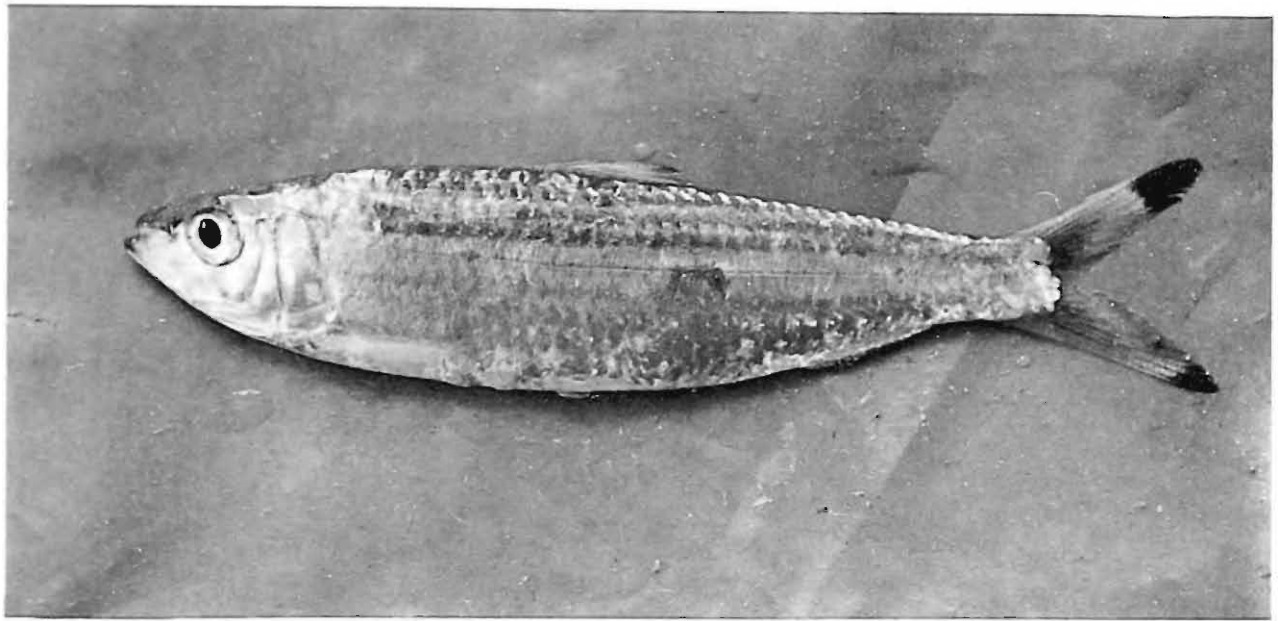


Fig. 120 *Sardinella melanura*

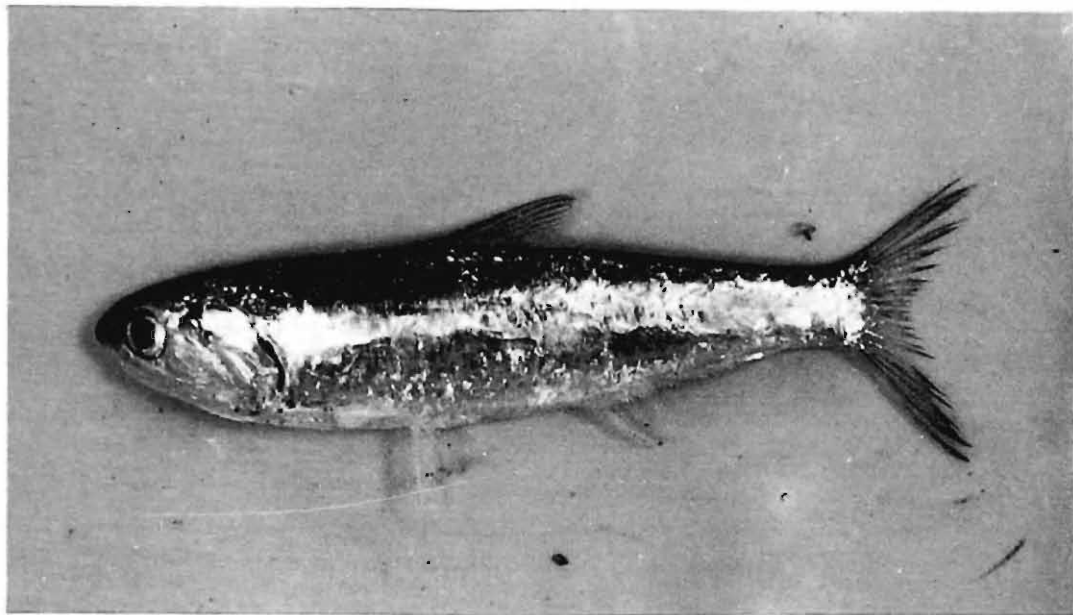


Fig. 121 *Stolephorus commersonii*

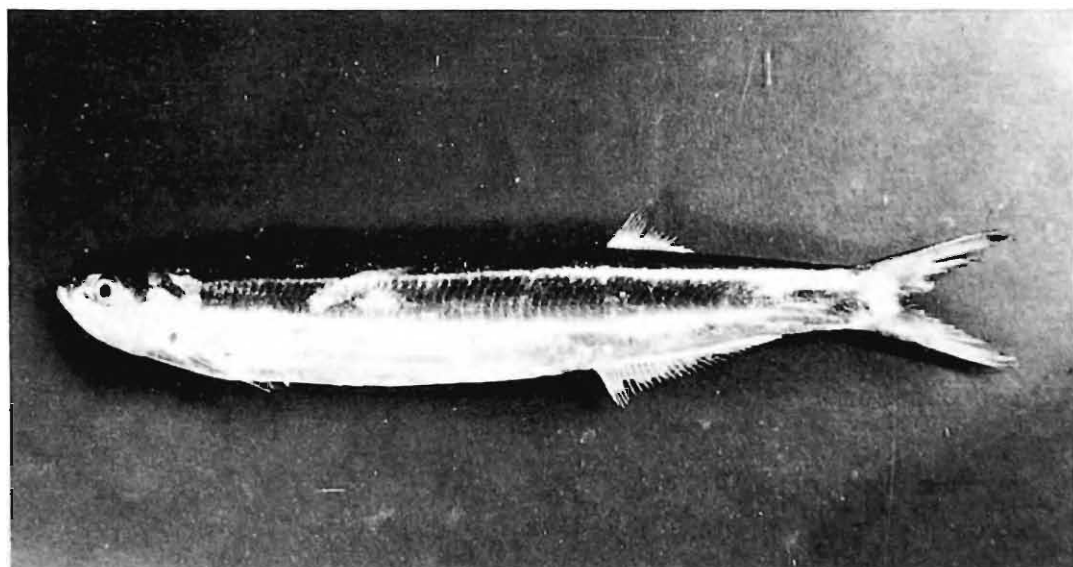


Fig. 122 *Chirocentrus dorab*

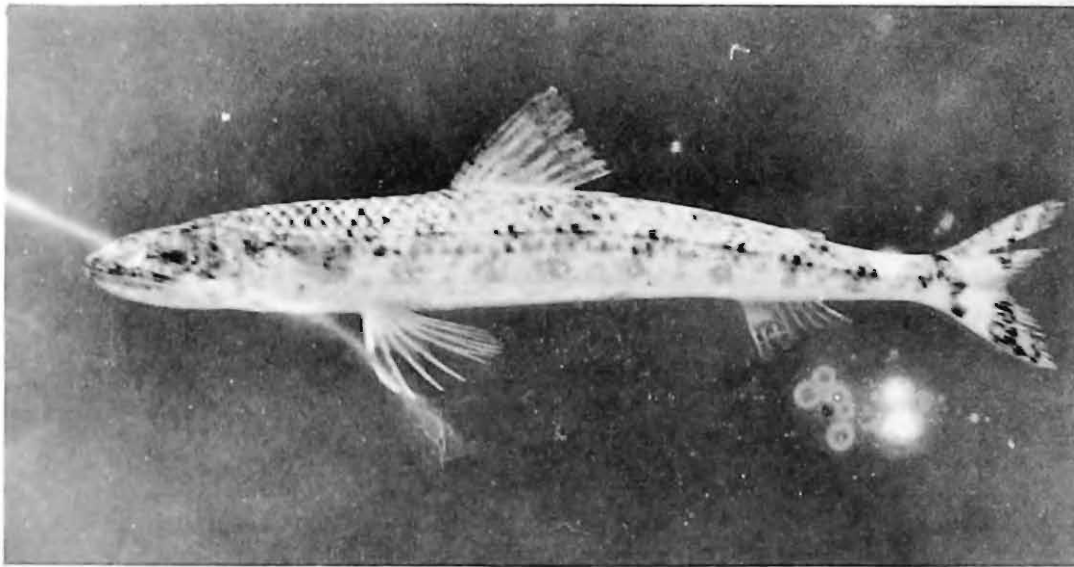


Fig. 123 *Saurida gracilis*

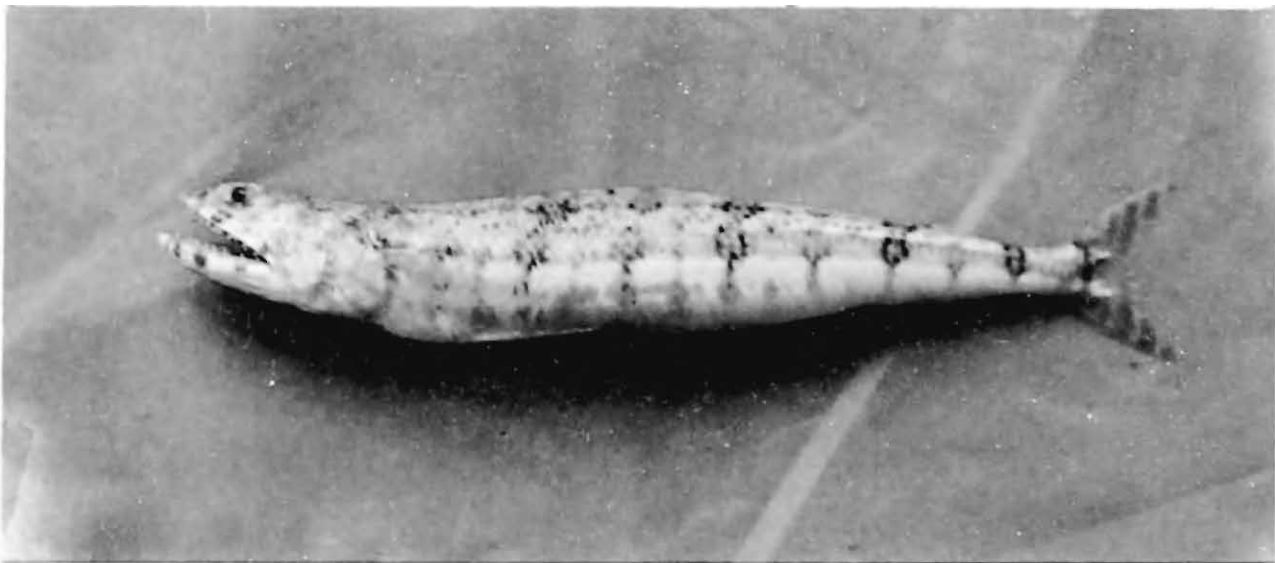


Fig. 124 *Synodus variegatus*

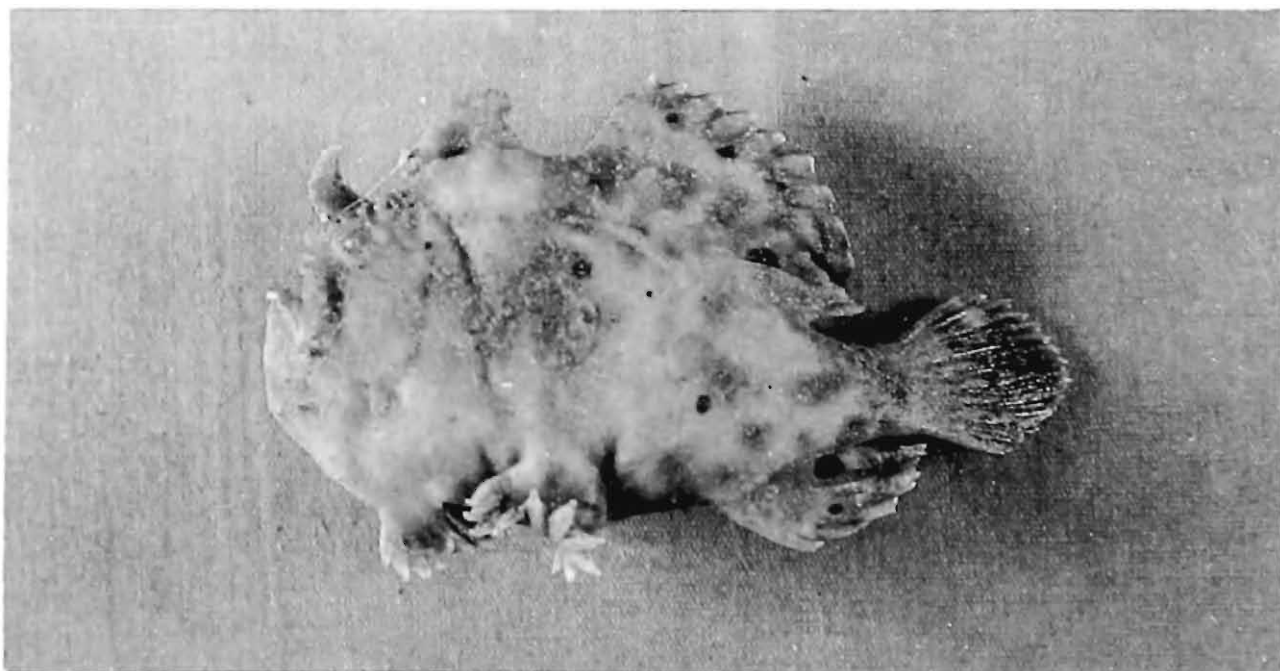


Fig. 125 *Antennarius commersoni*

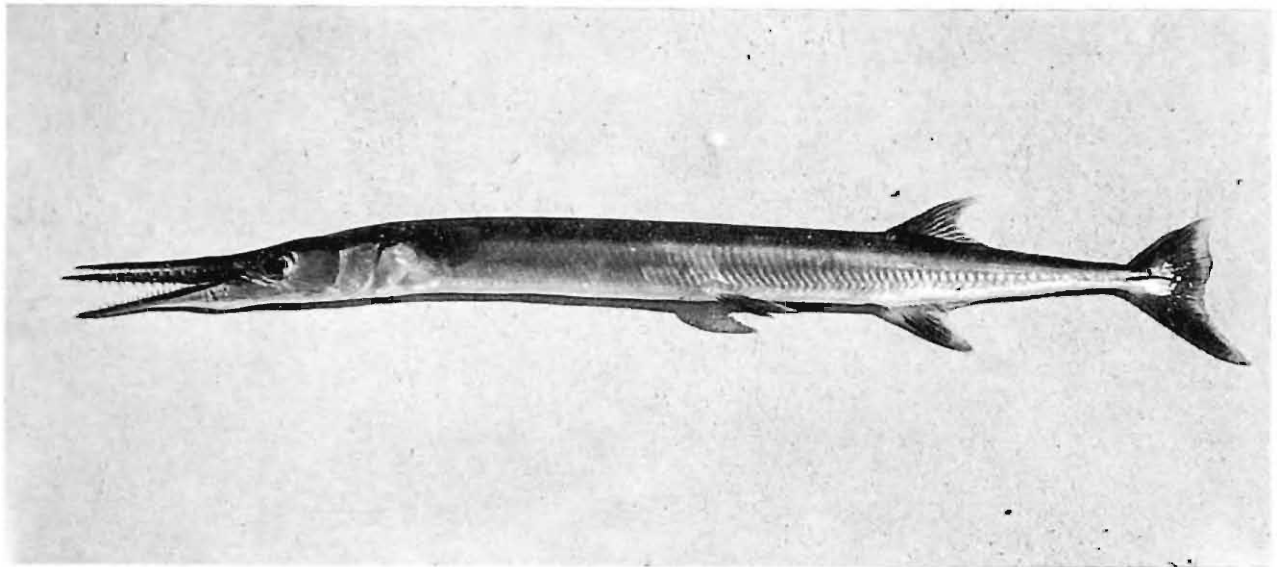


Fig. 126 *Tylosurus crocodilus*

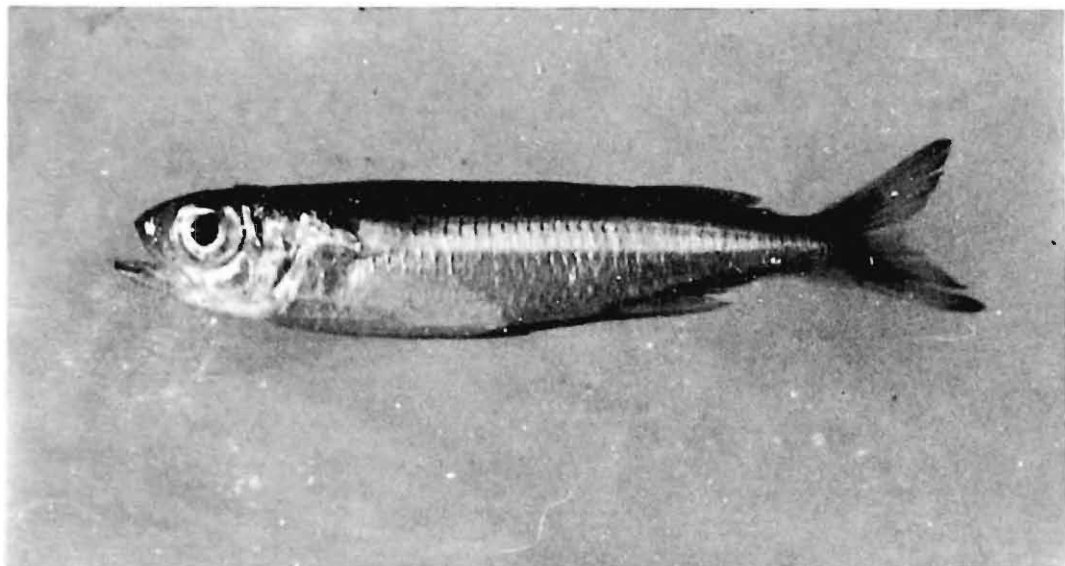


Fig. 127 *Etherinomorus lacunatus*

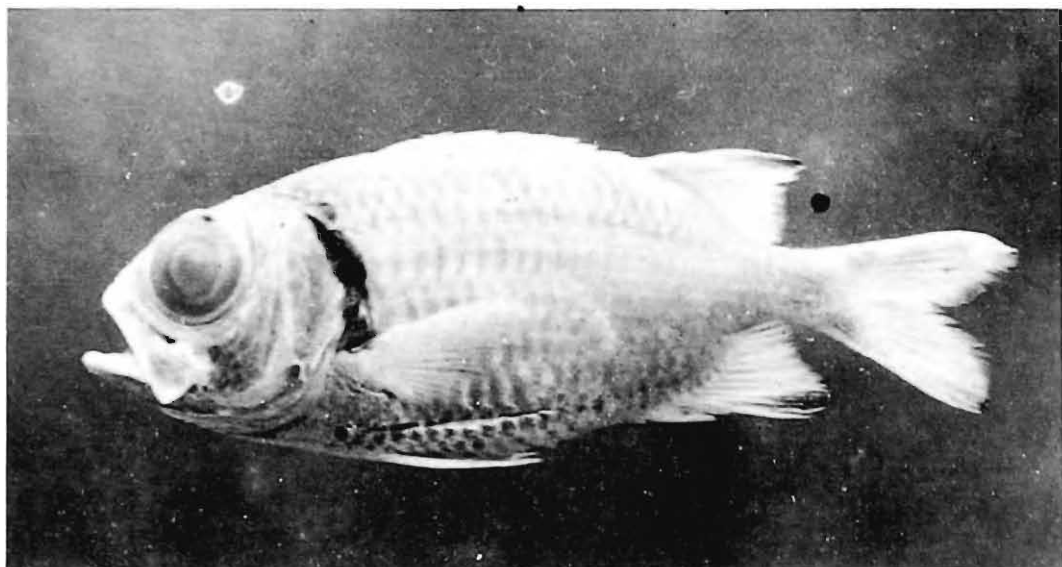


Fig. 128 *Myripristis murdjan*

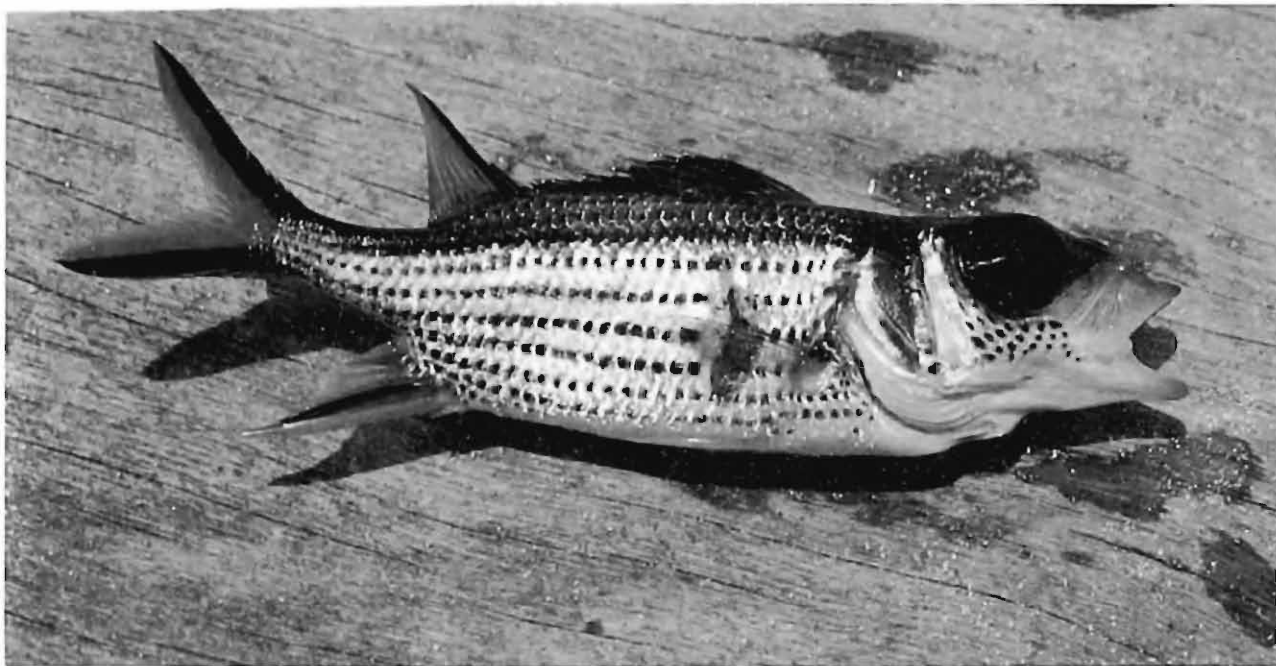


Fig. 129 *Neoniphon sammara*

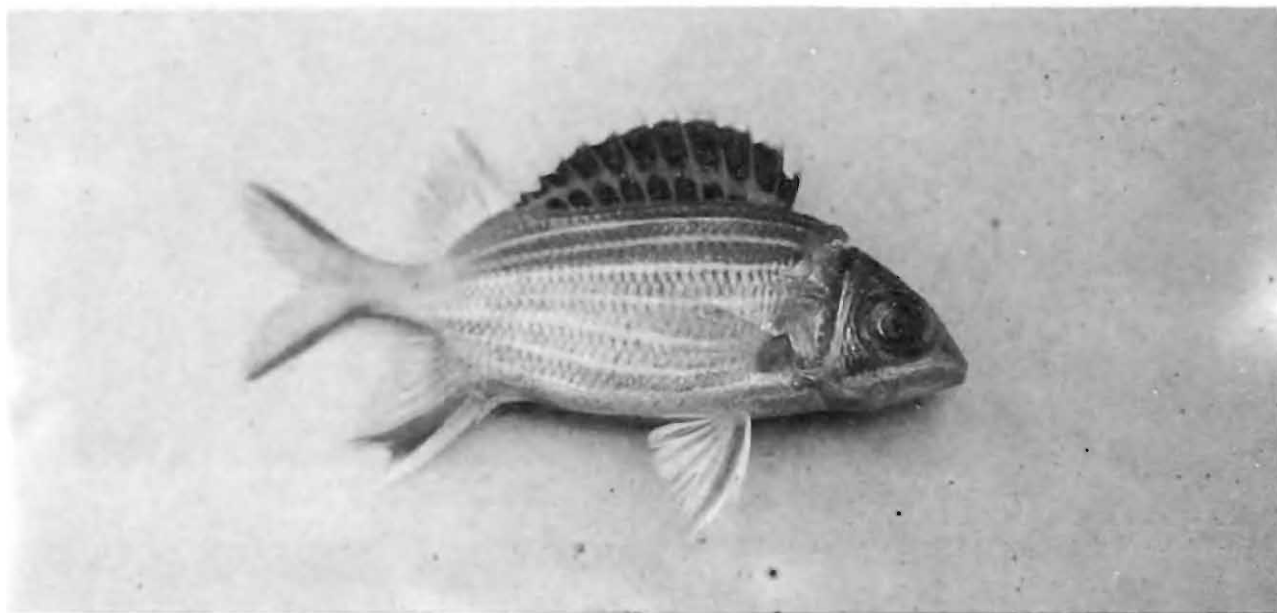


Fig. 130 *Sargocentron ittodai*

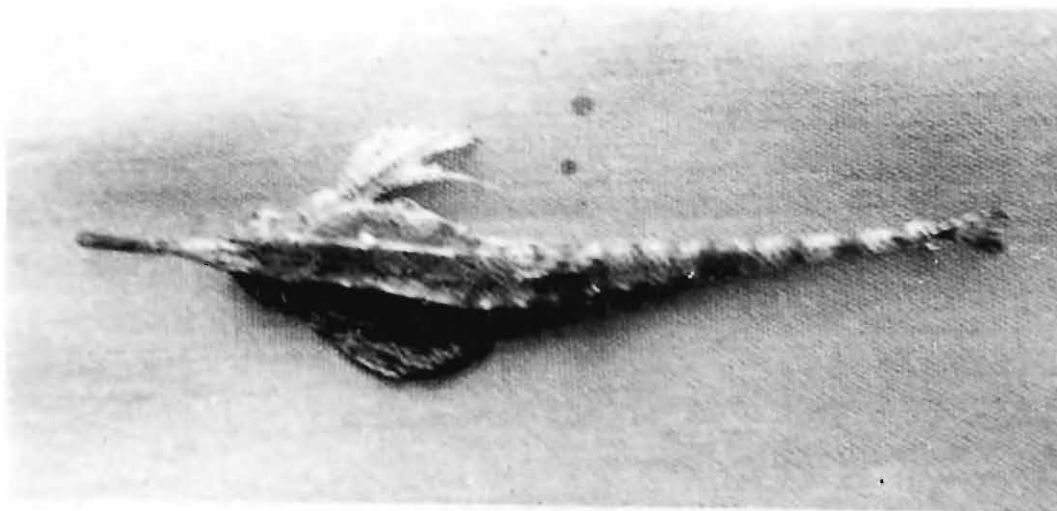


Fig. 131 *Pegasus volitans*

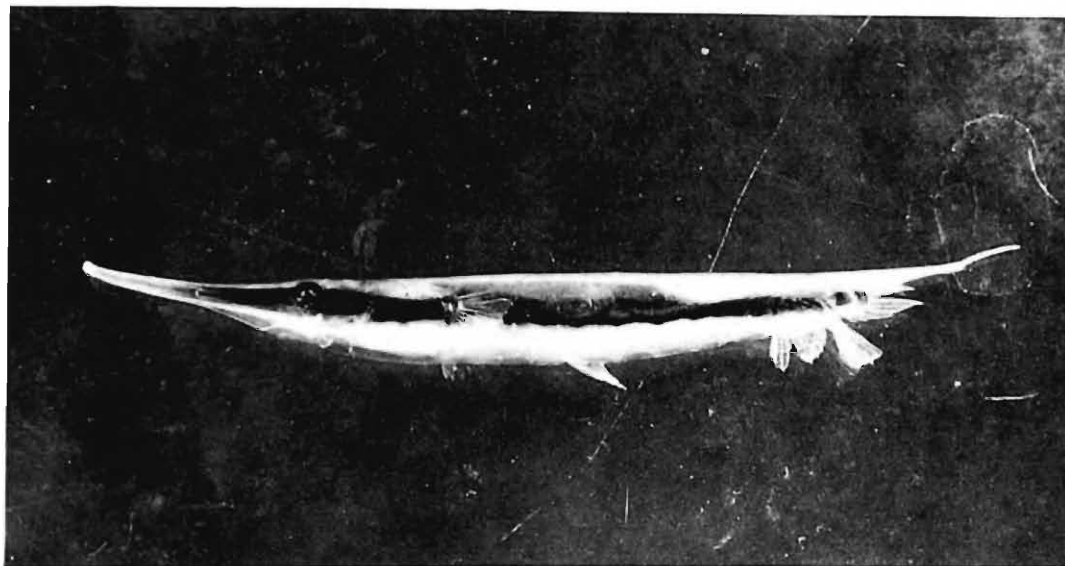


Fig. 132 *Aeoliscus strigatus*

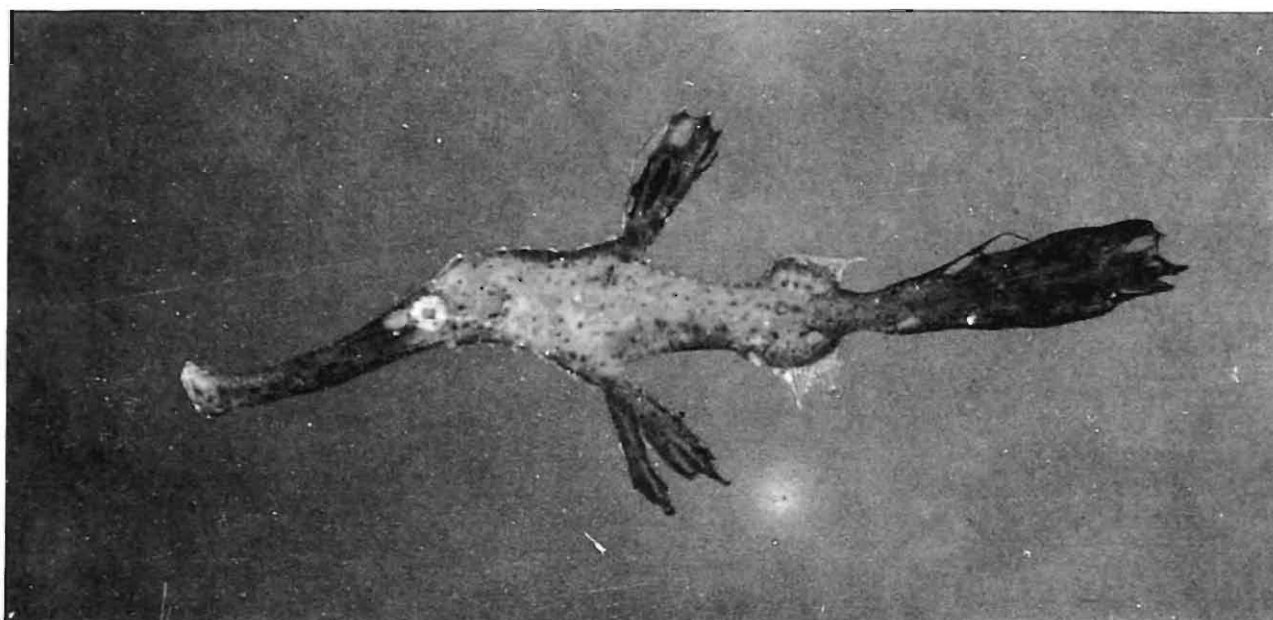


Fig. 133 *Solenostomus paradoxus*

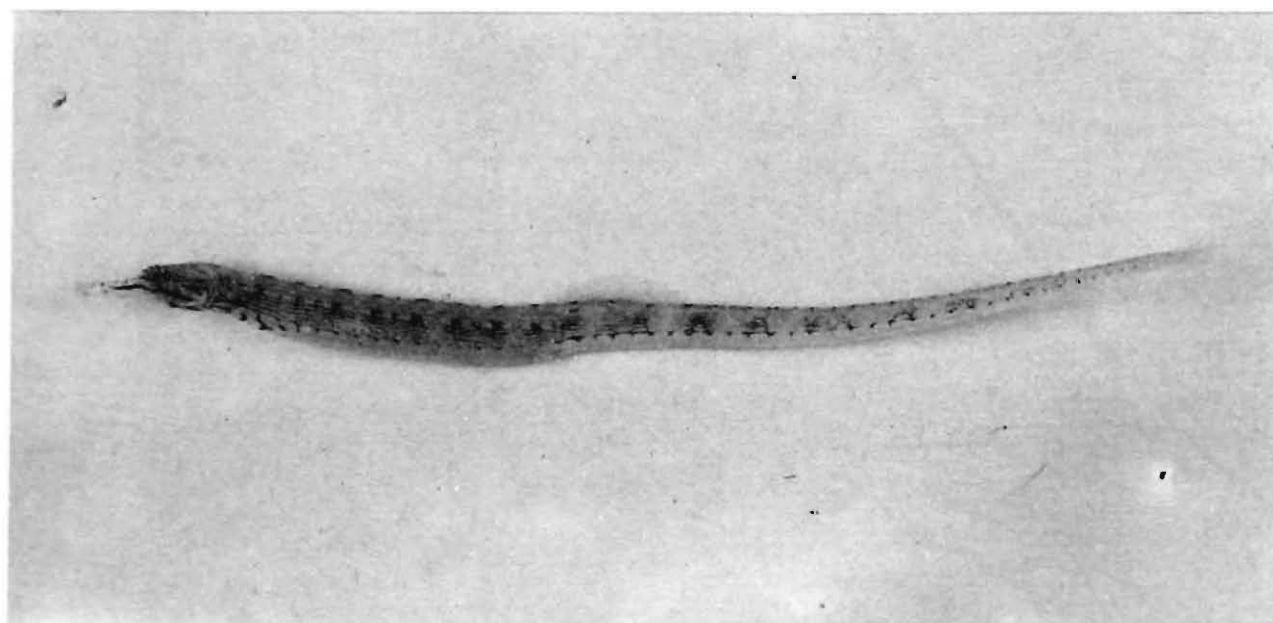


Fig. 134 *Corythoichthys haematopterus*



Fig. 135. *Hippocampus kuda*



Fig. 136. *Dactyloptena orientalis*

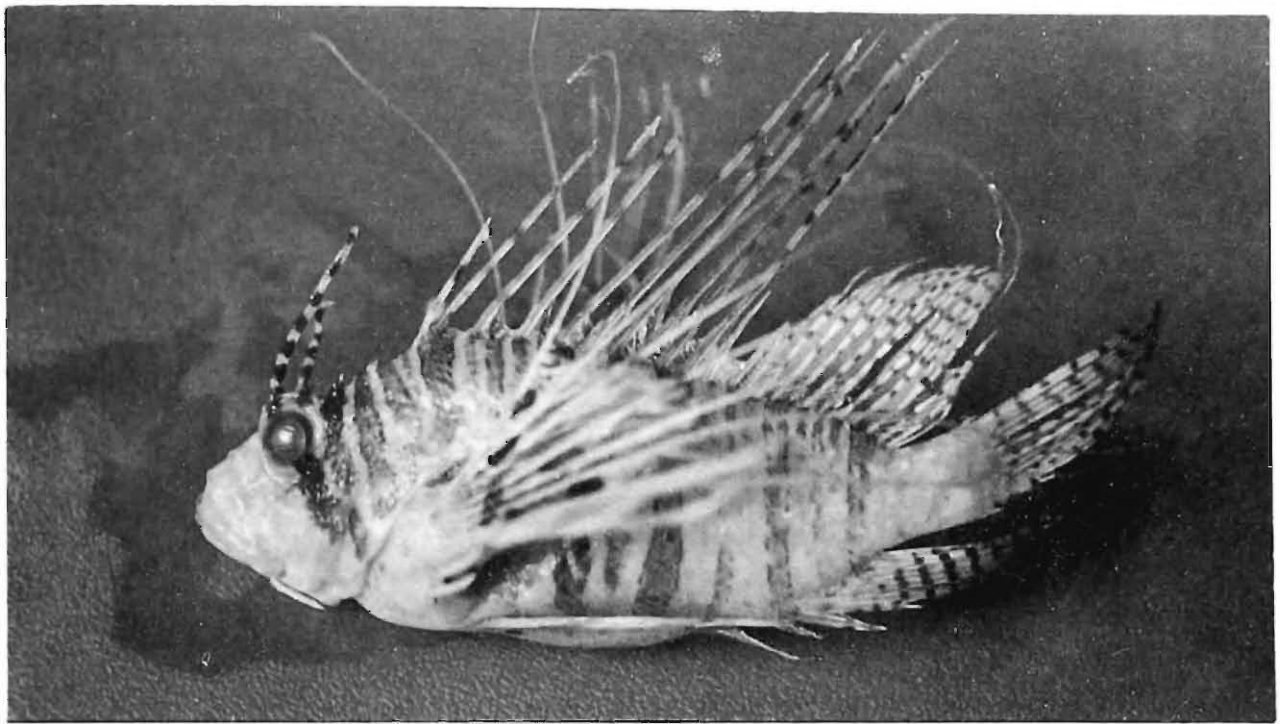


Fig. 137. *Pterois antennata*

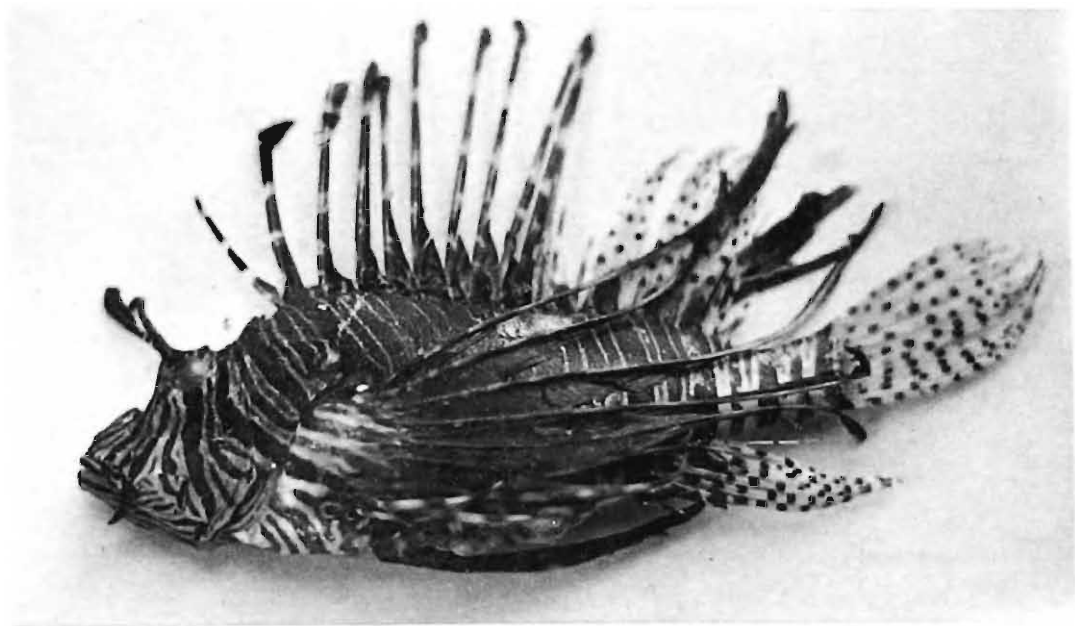


Fig. 138. *Pterois volitans*

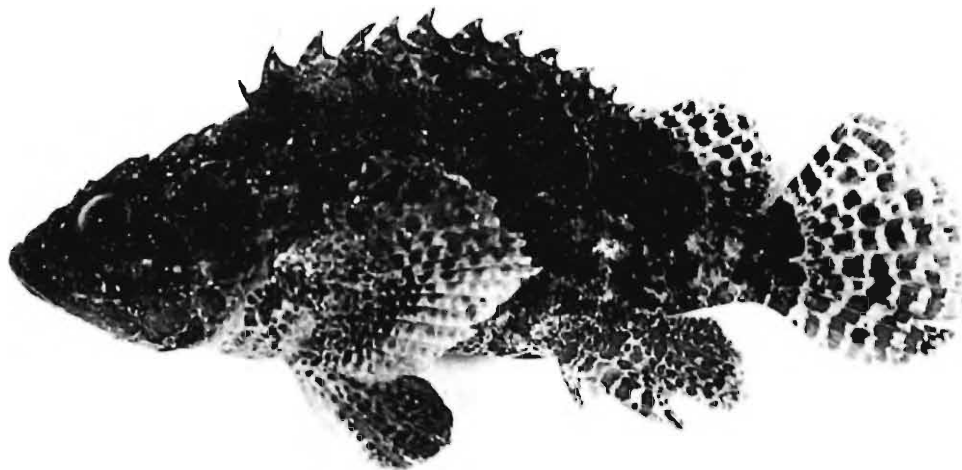


Fig. 139 *Scorpaenodes guamensis*



Fig. 140 *Polycaulus uranoscopus*



Fig. 141 *Cephalopholis microprion*

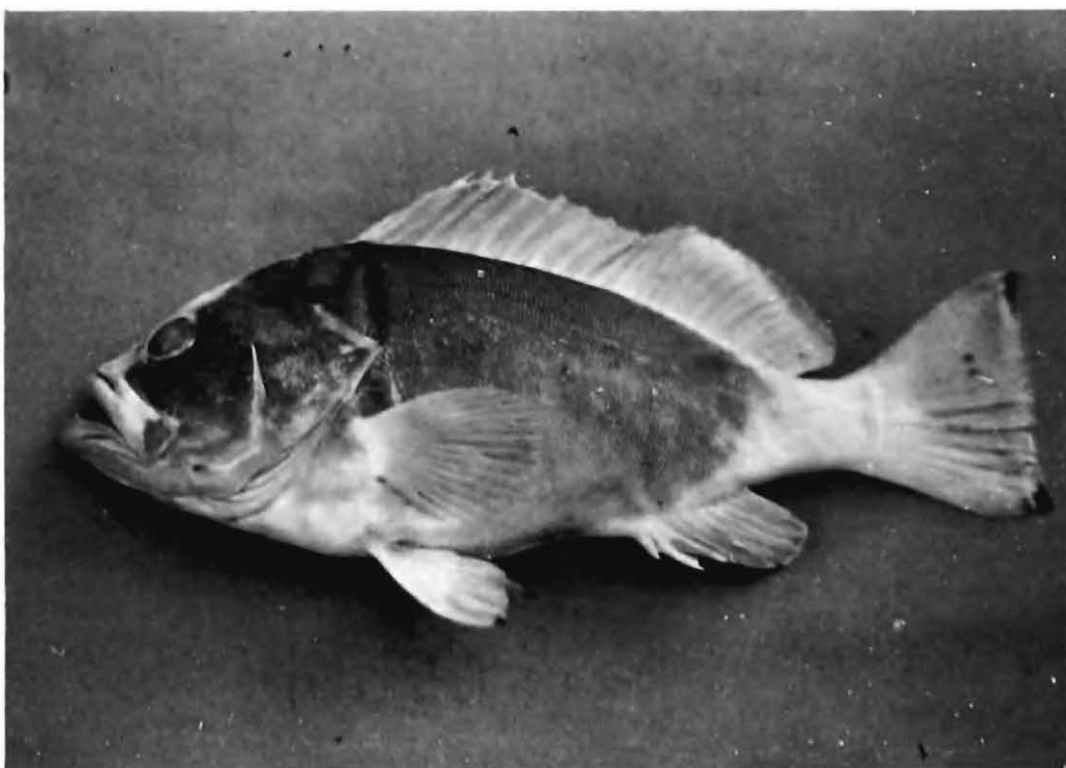


Fig. 142 *Epinephelus flavocaeruleus*

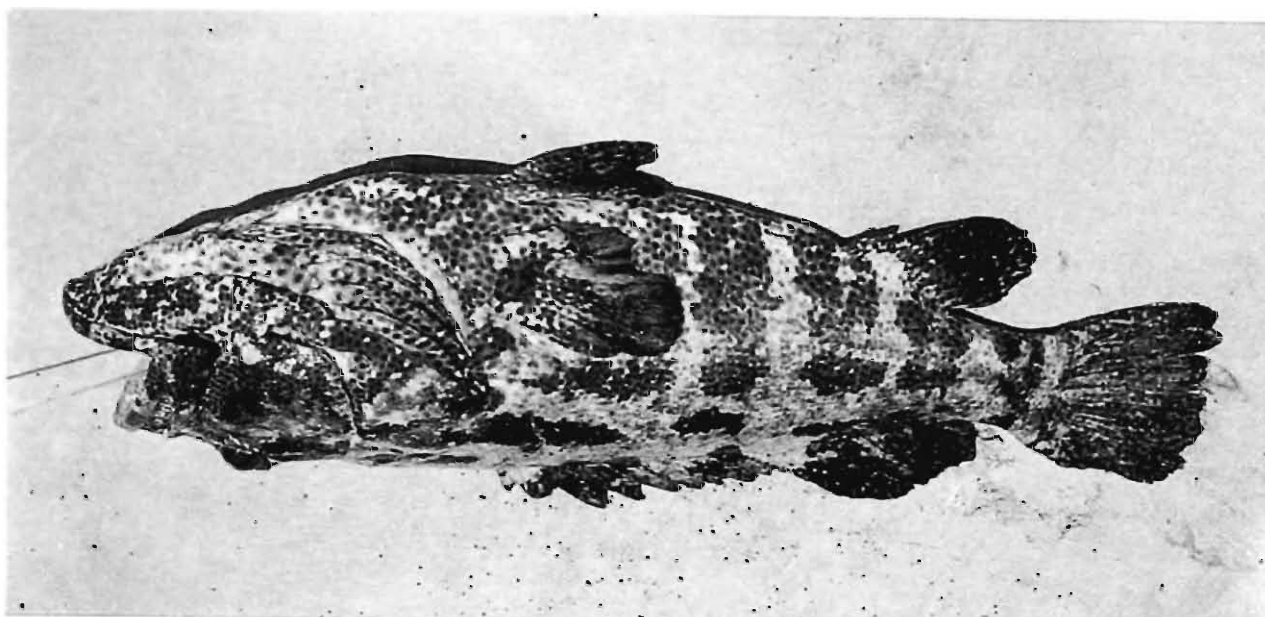


Fig. 143 *Epinephelus fuscoguttatus*

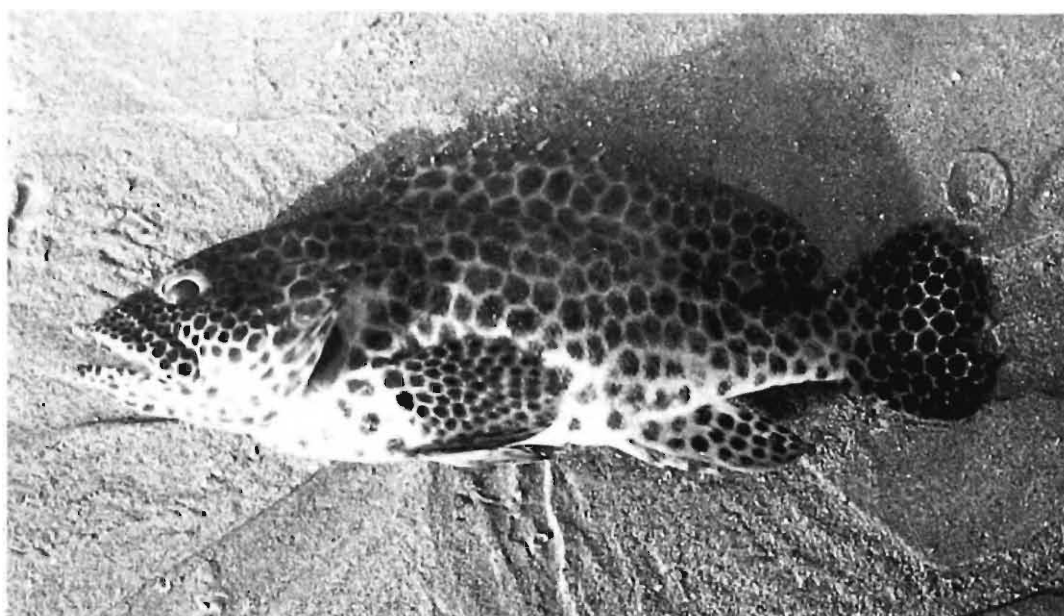


Fig. 144 *Epinephelus merra*

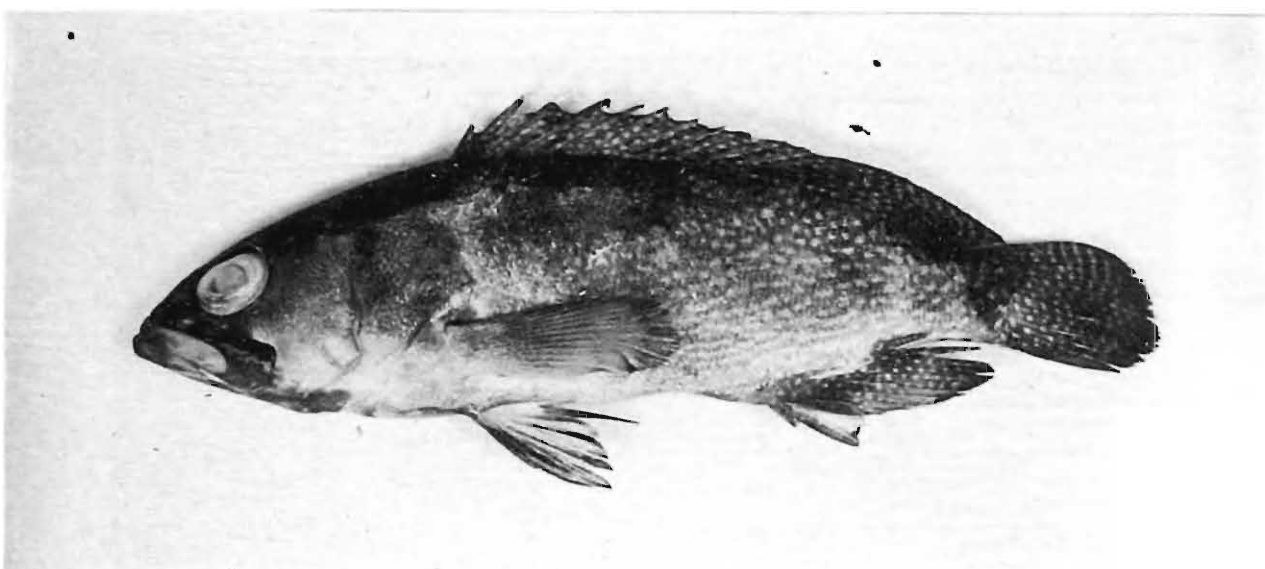


Fig. 145 *Epinephelus ongus*

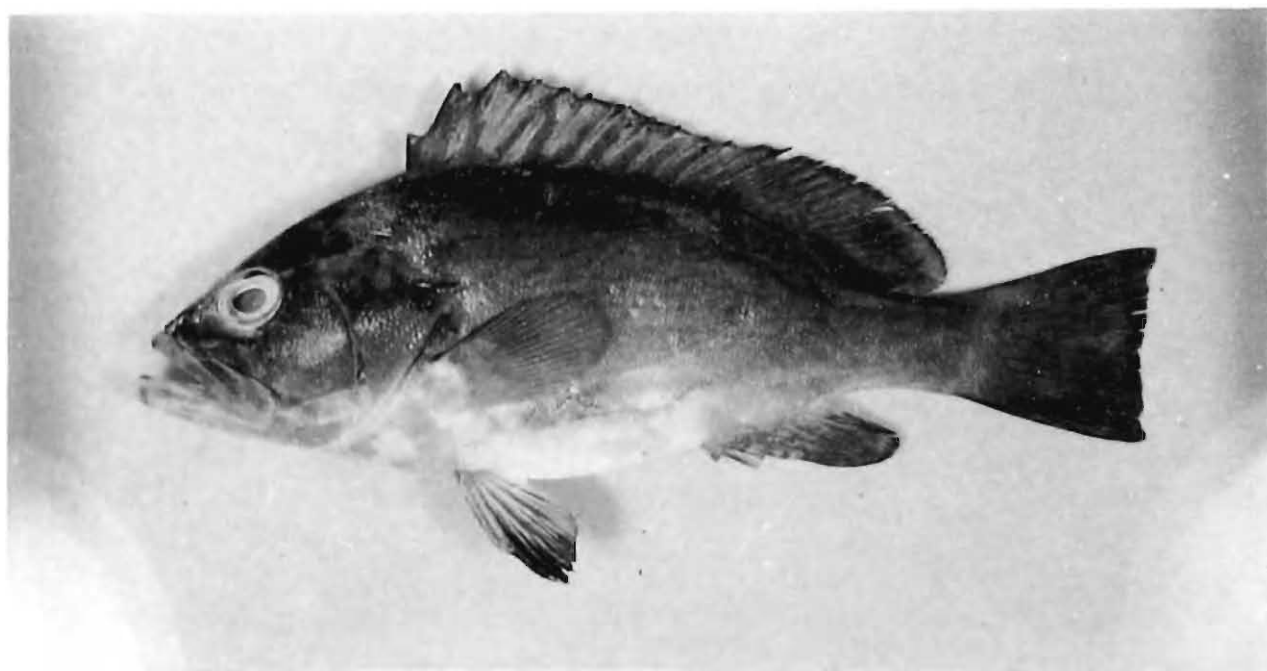


Fig. 146 *Epinephelus undulosus*



Fig. 147 *Plectropomus pessuliferus*

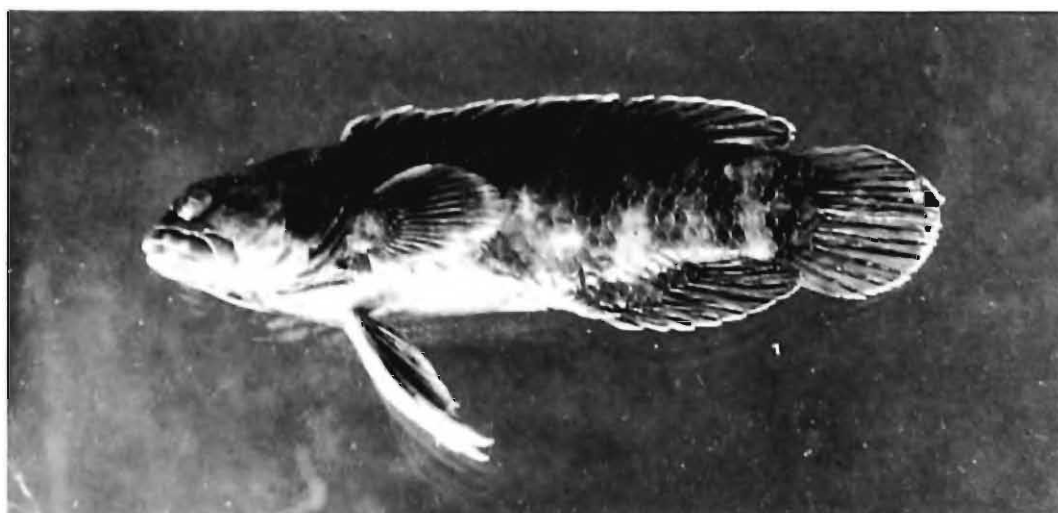


Fig. 148 *Plesiops caeruleolineatus*

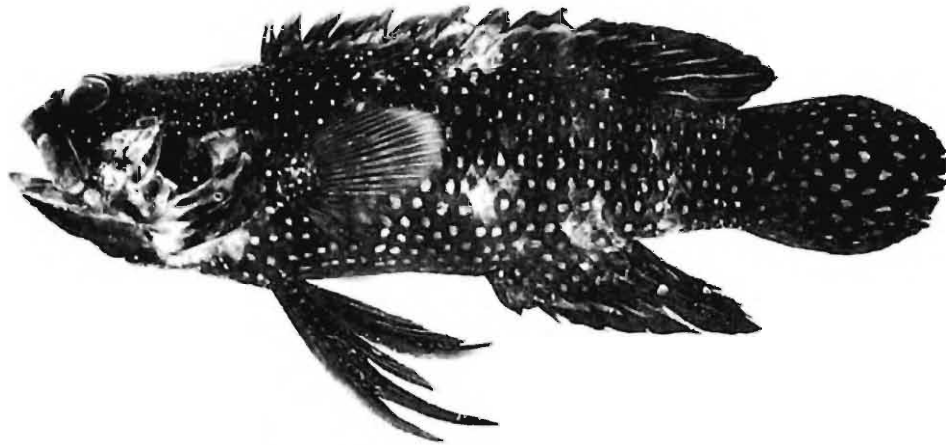


Fig. 149 *Plesiops corallicola*

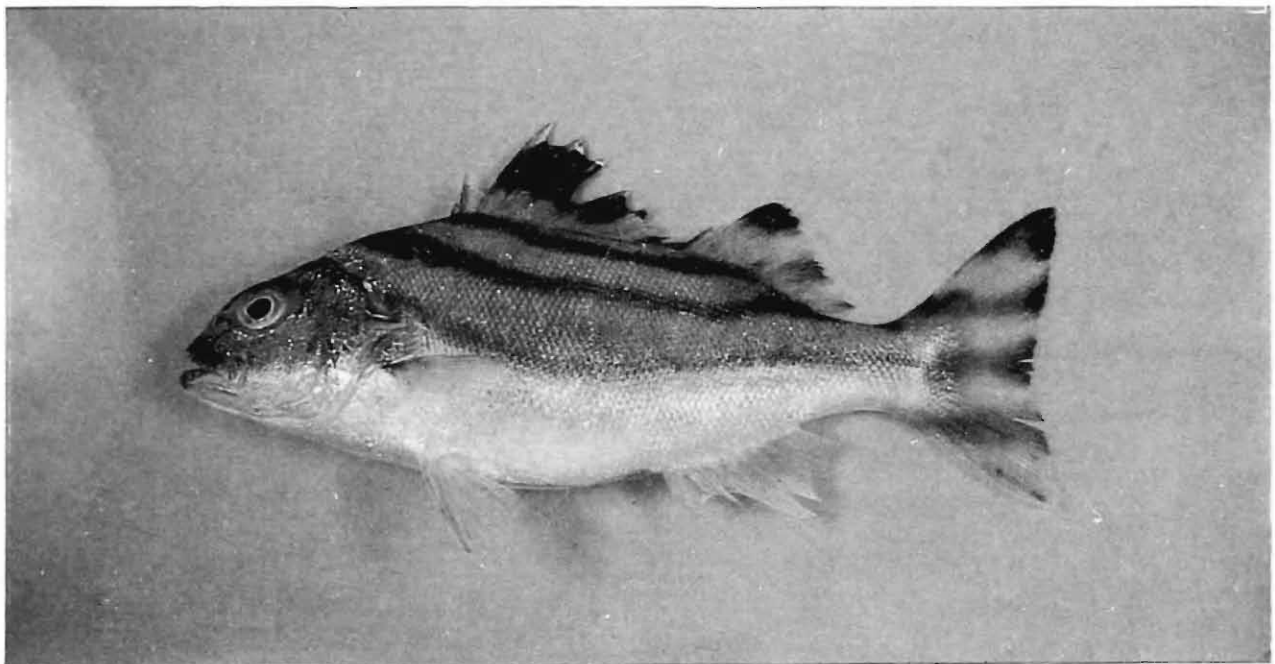


Fig. 150 *Terapon jarbua*

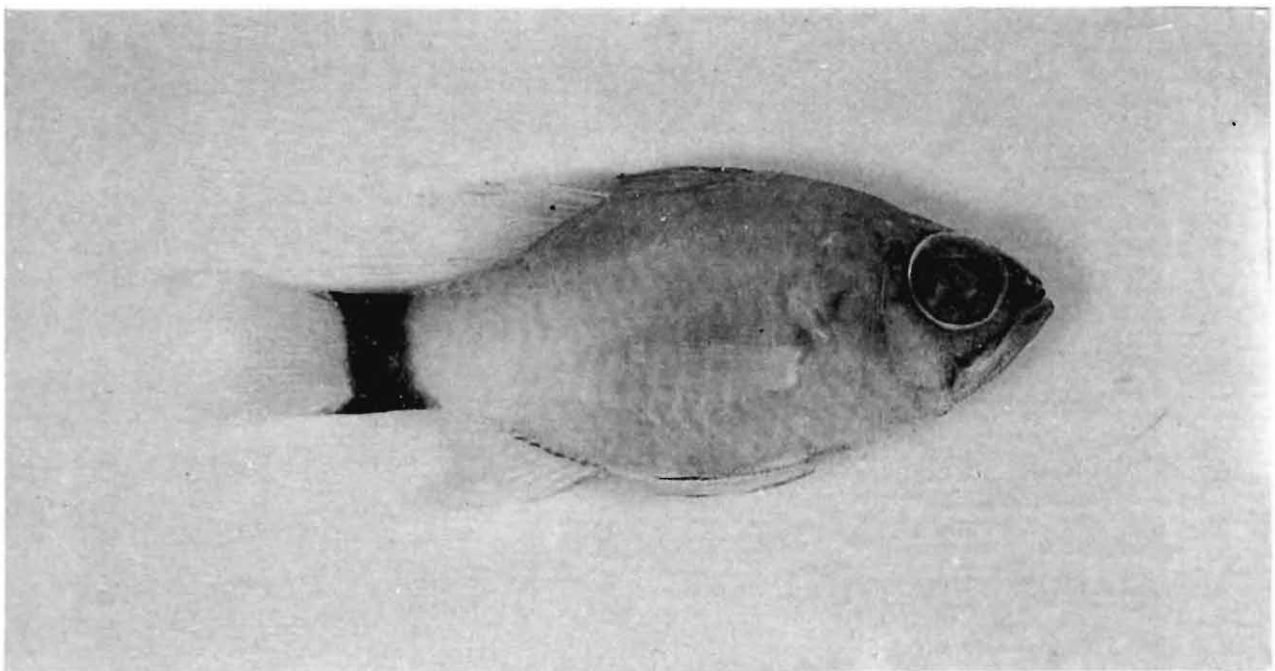


Fig. 151 *Apogon aureus*

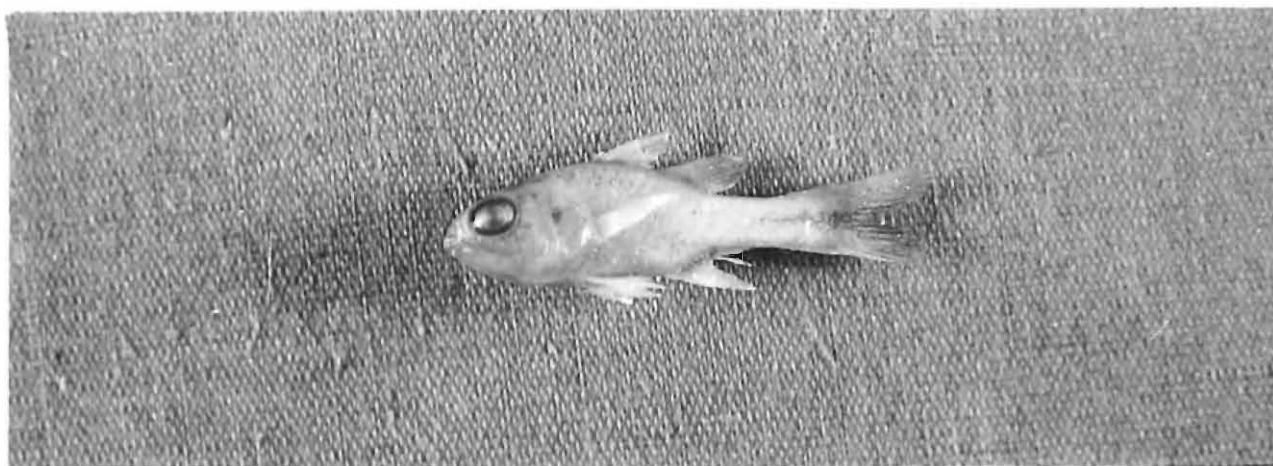


Fig. 152 *Apogon coccineus*

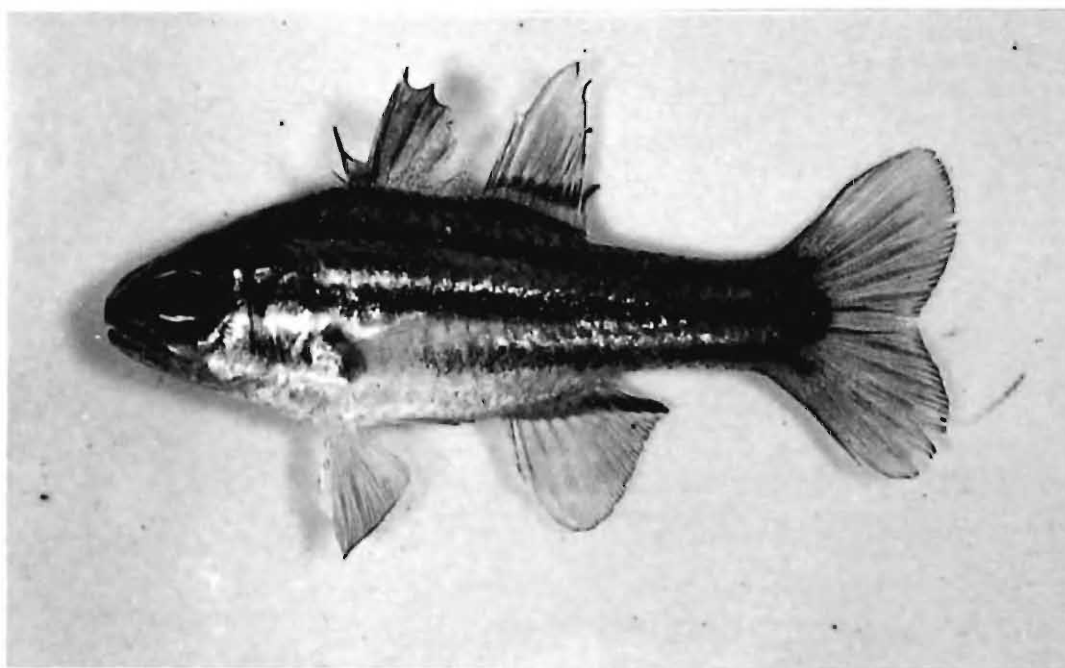


Fig. 153 *Apogon cookii*

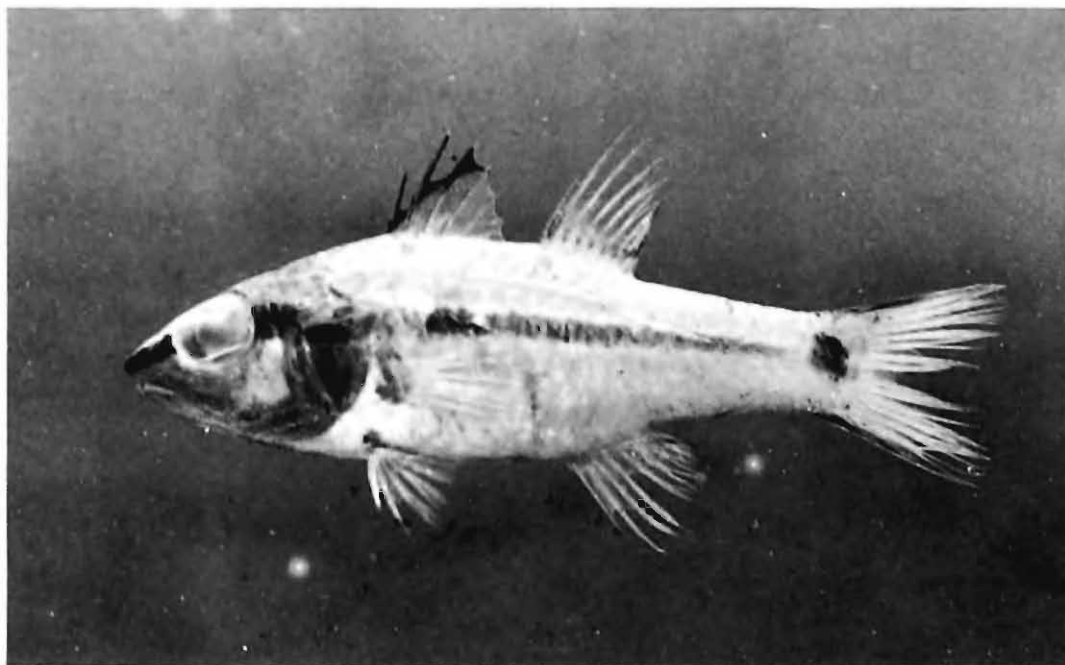


Fig. 154 *Apogon fraenatus*

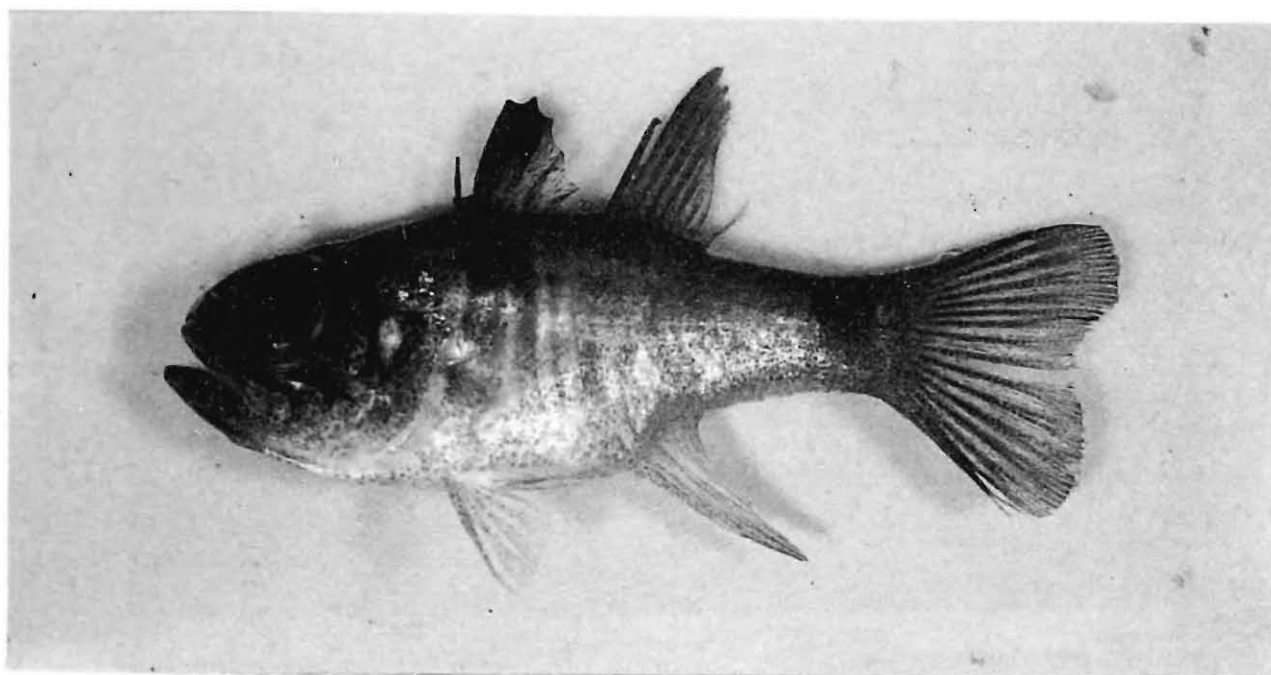


Fig. 155 *Apogon guineensis*

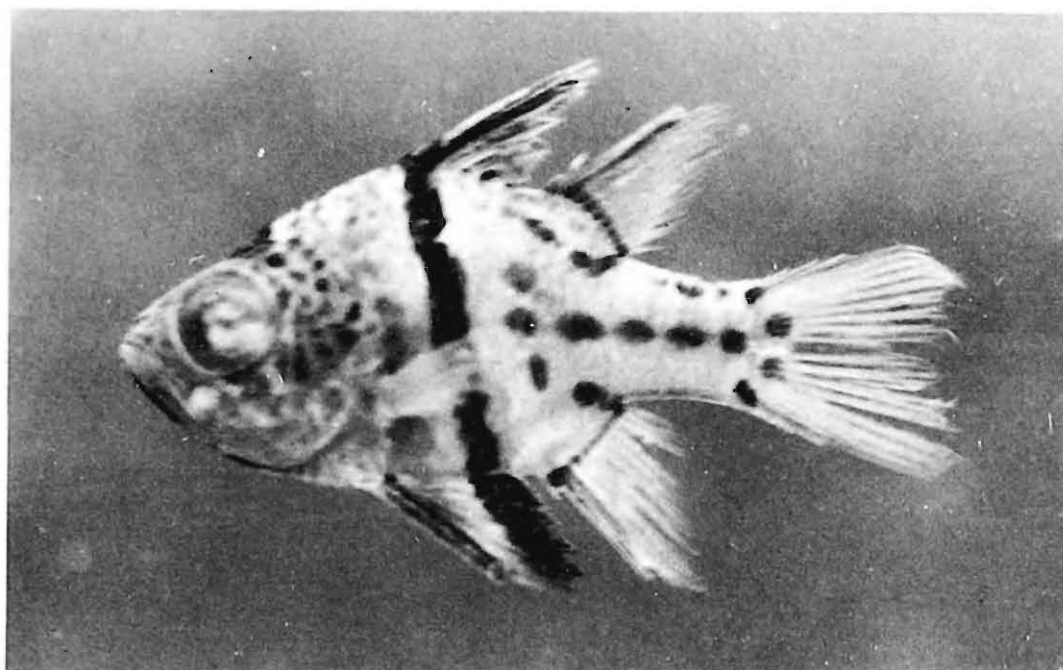


Fig. 156 *Sphaeramia orbicularis*

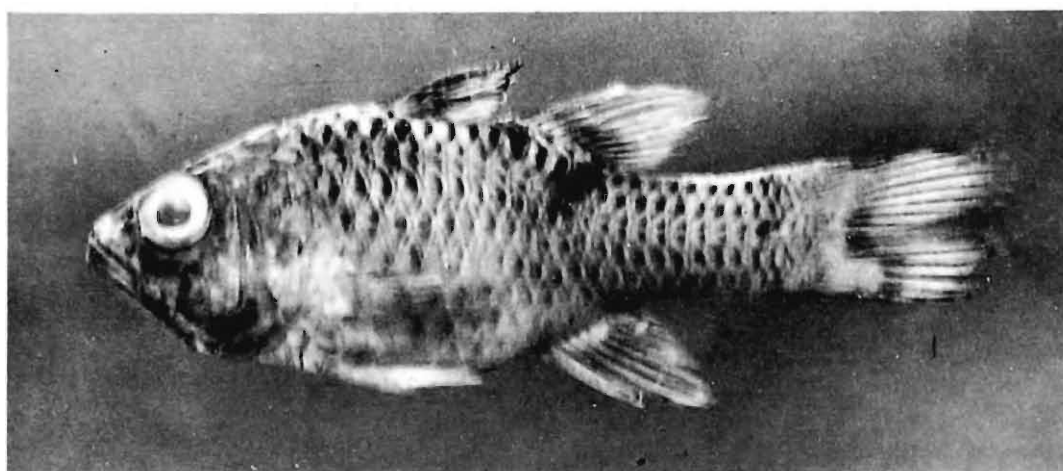


Fig. 157 *Apogon trimaculatus*

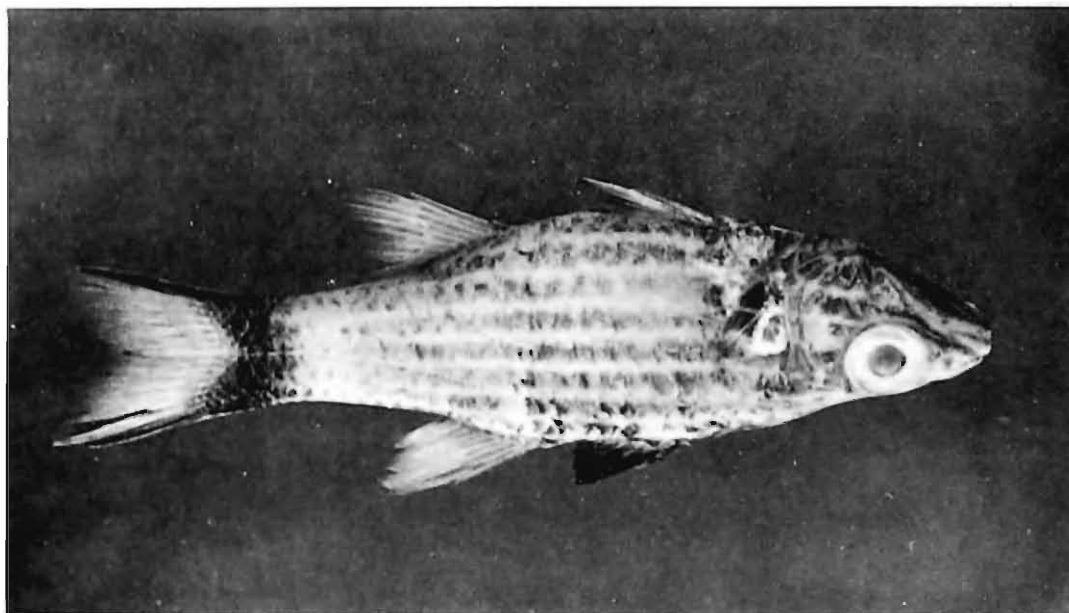


Fig. 158 *Cheilodipterus lineatus*

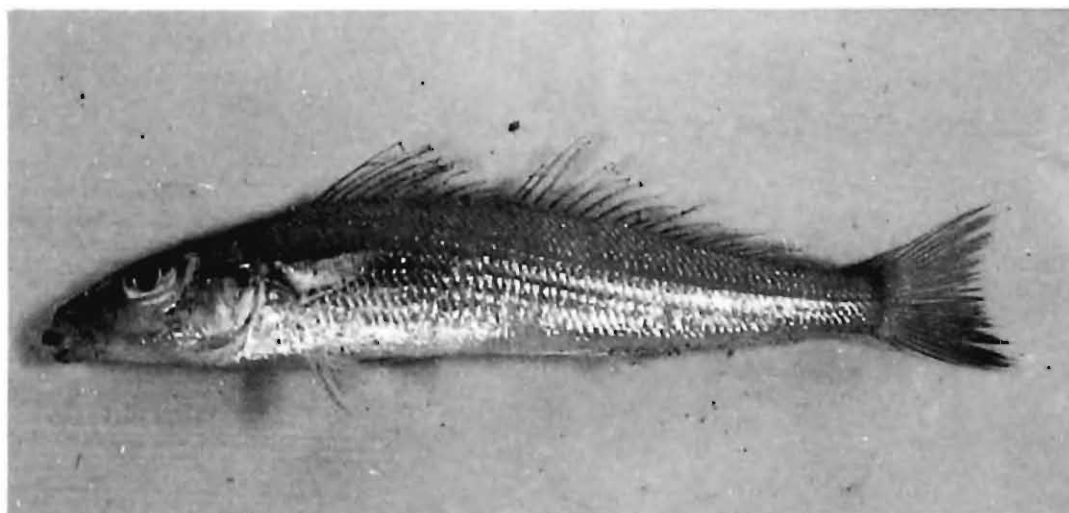


Fig. 159 *Sillago sihama*

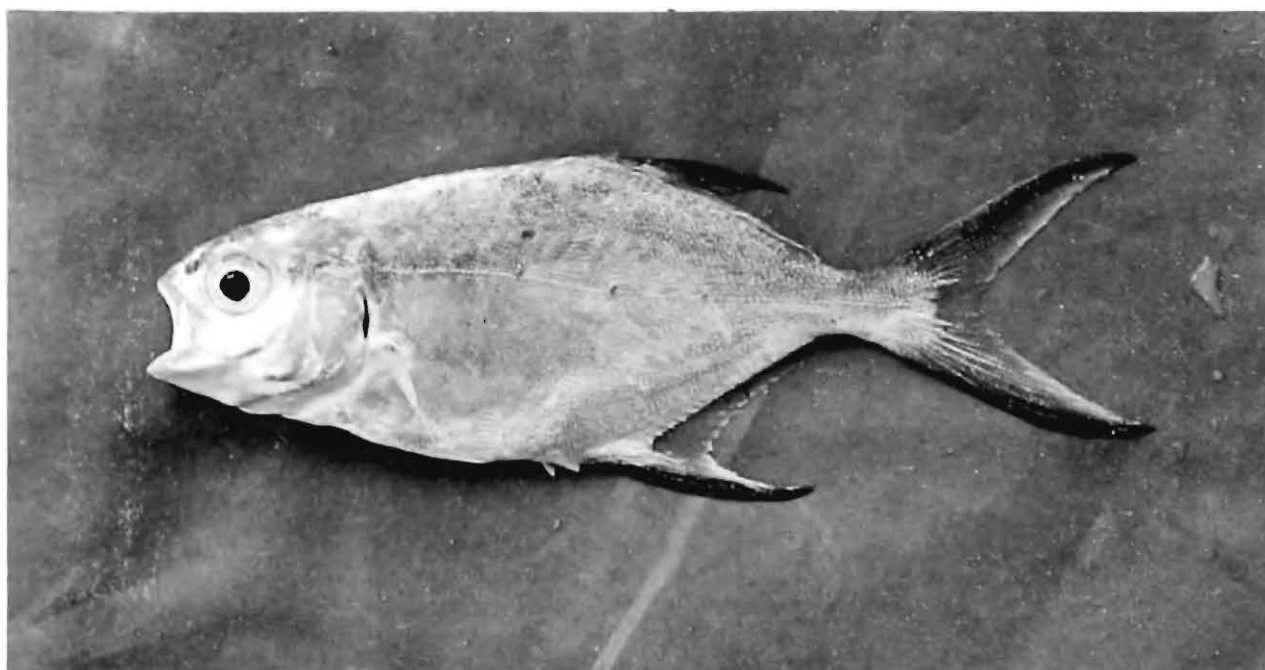


Fig. 160 *Trachinotus blochii*

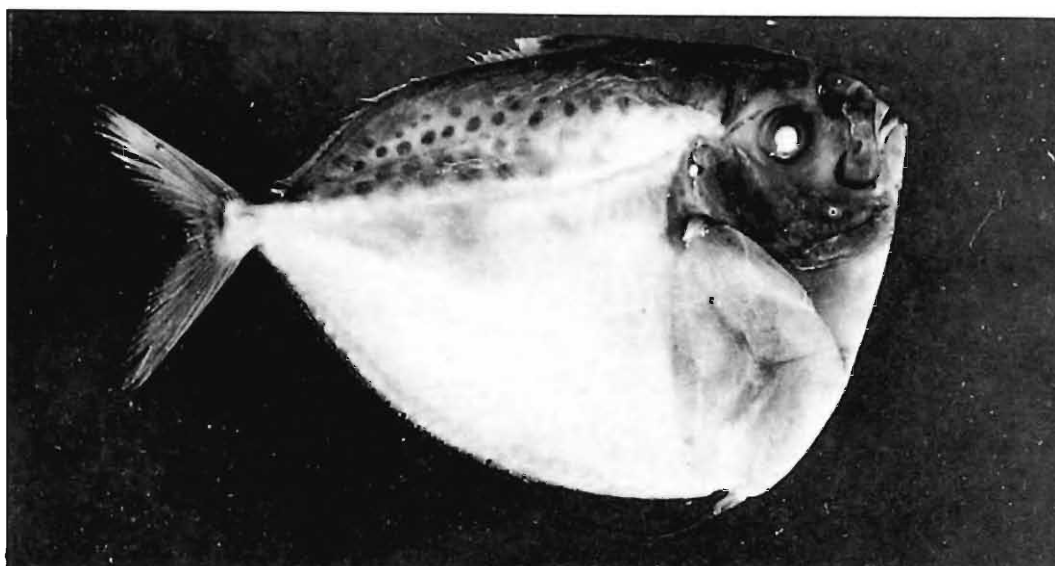


Fig. 161 *Mene maculata*

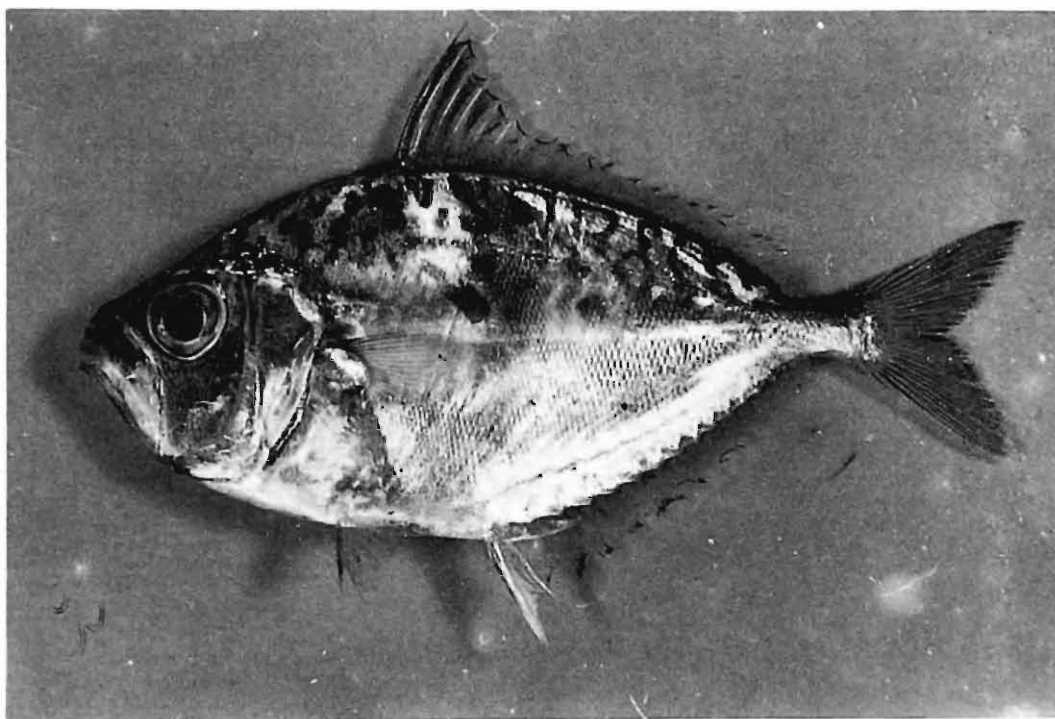


Fig. 162 *Gazza minuta*

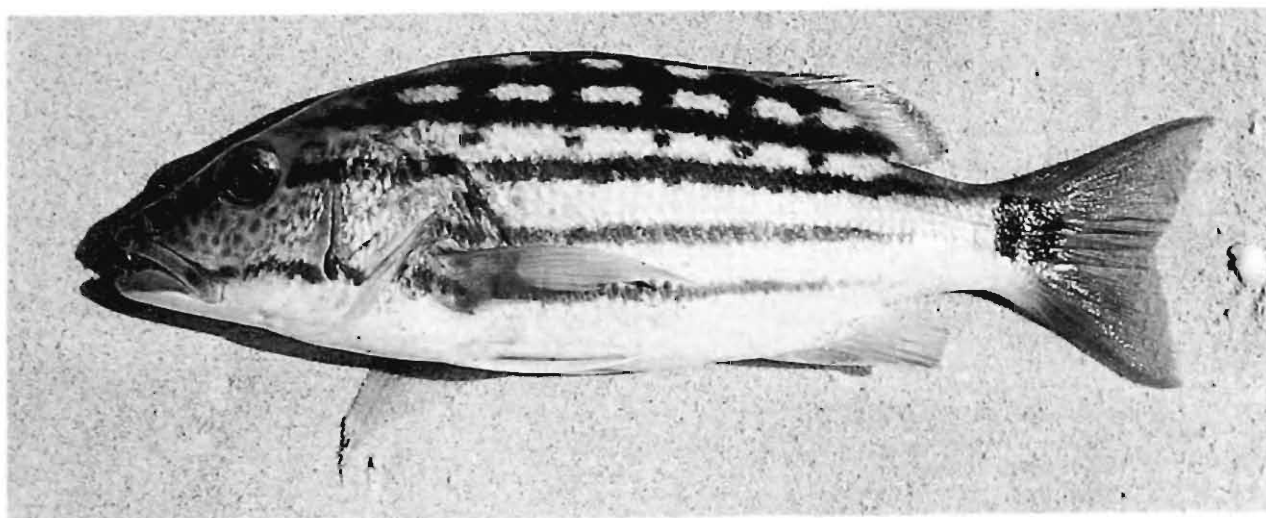


Fig. 163 *Lutjanus decussatus*

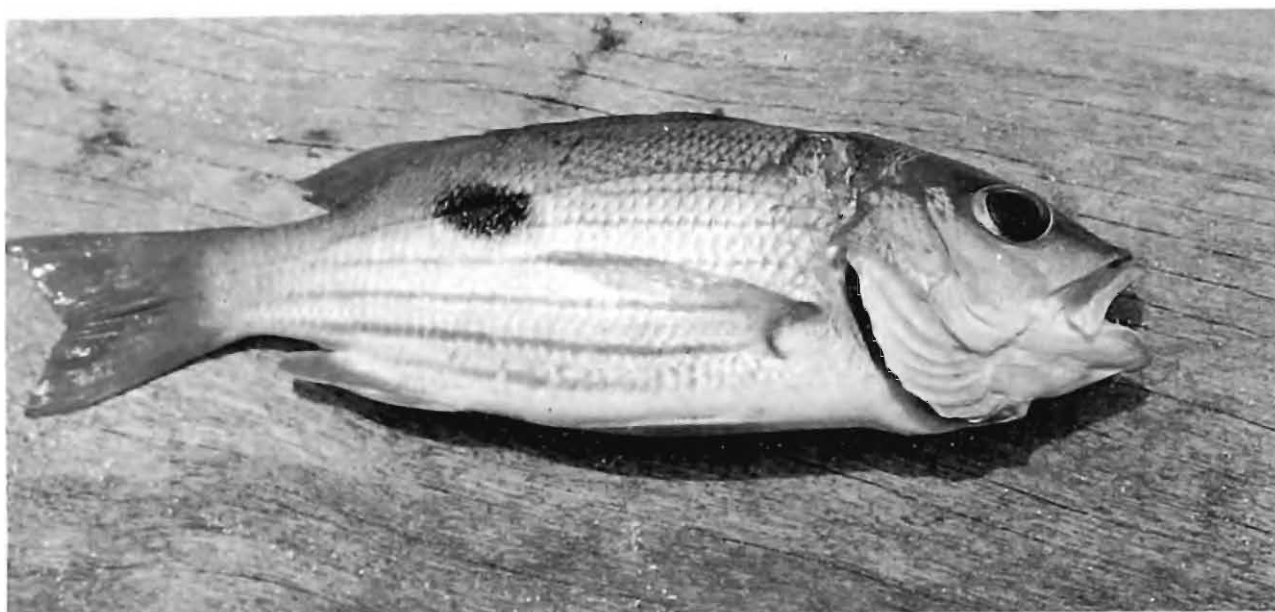


Fig. 164 *Lutjanus fluviiflamma*

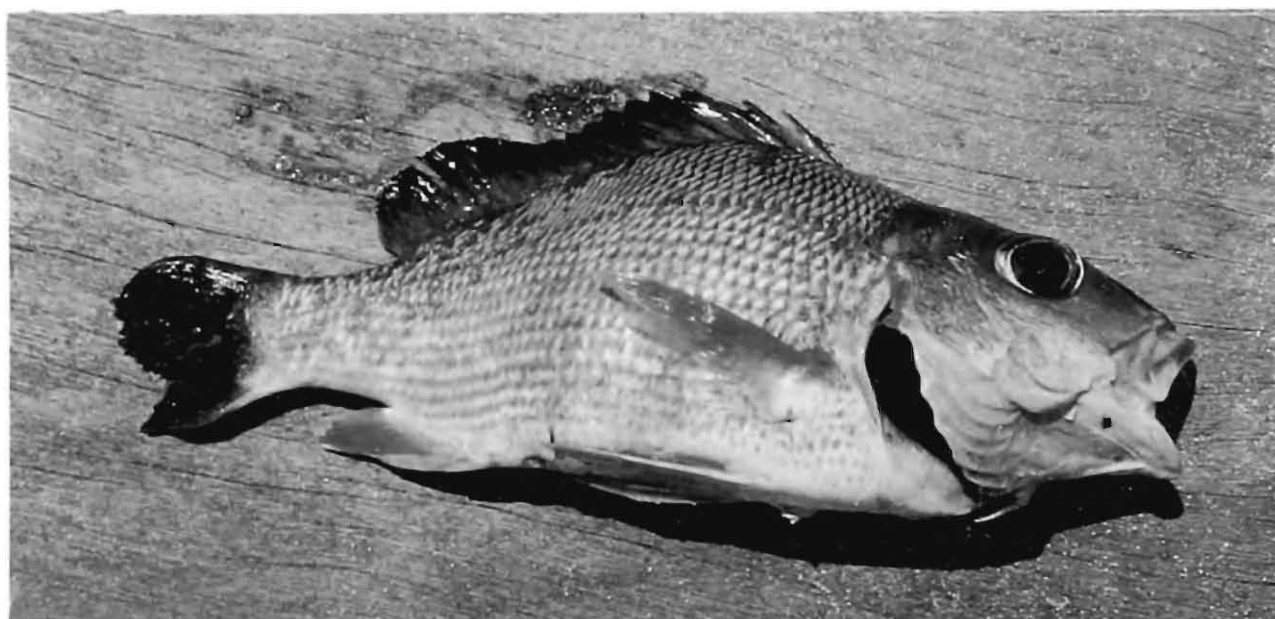


Fig. 165 *Lutjanus fulvus*

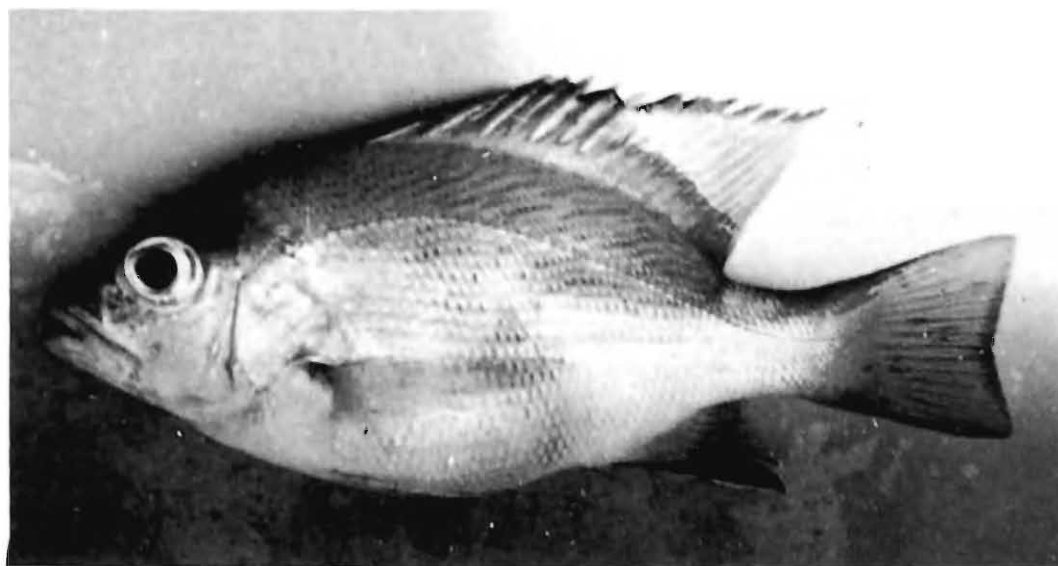


Fig. 166 *Lutjanus gibbus* (Juvenile)

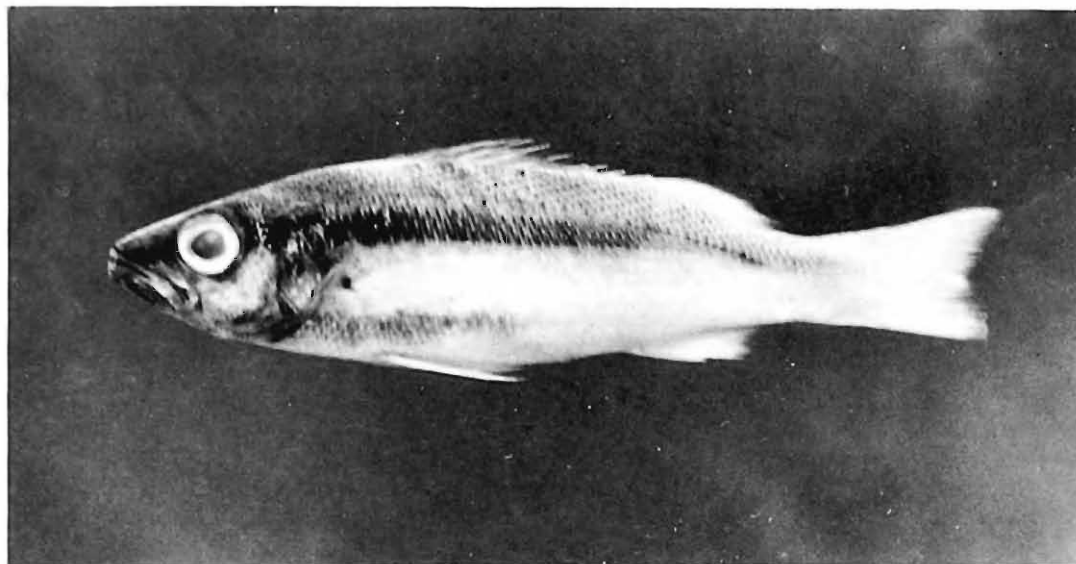


Fig. 167 *Lutjanus vitta*

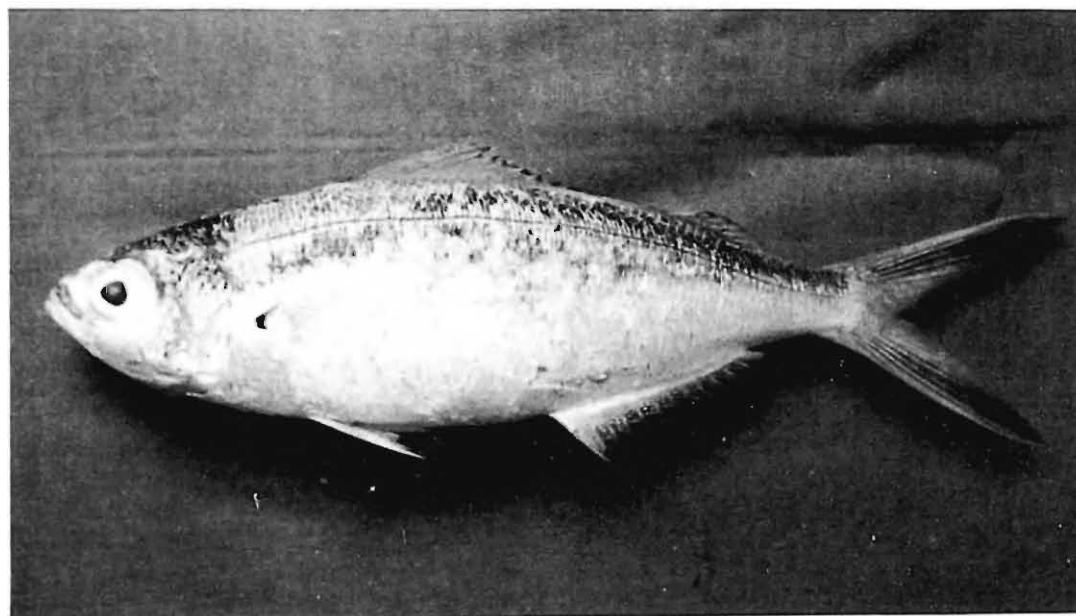


Fig. 168 *Caesio caerulaurea*

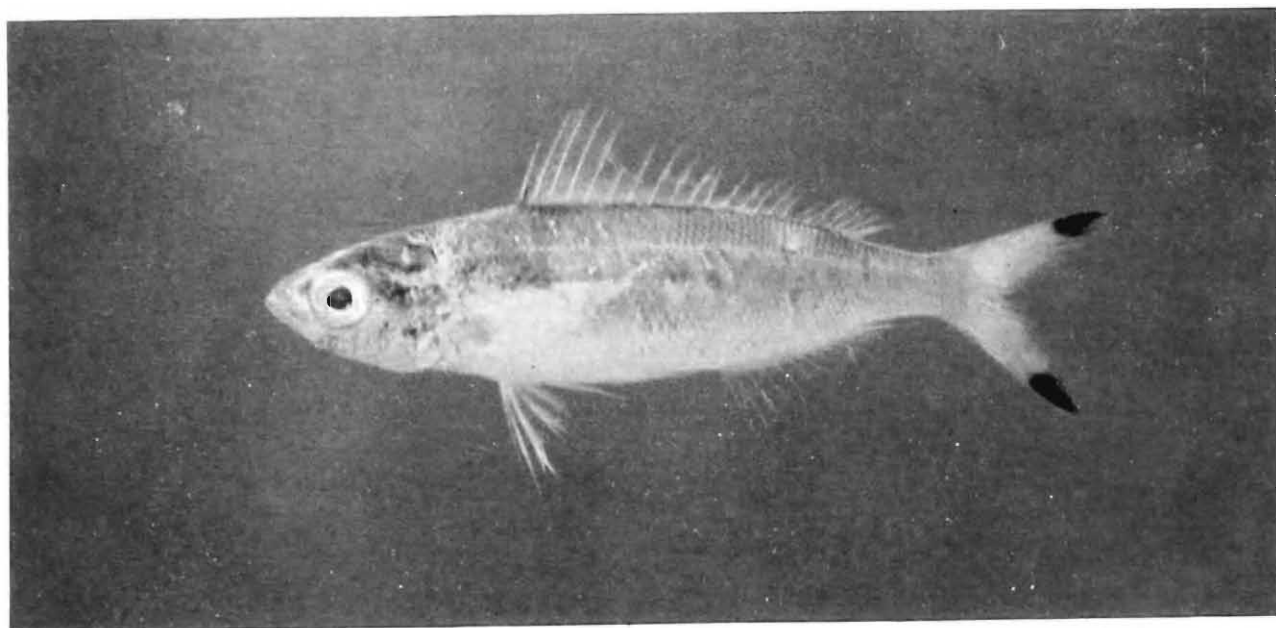


Fig. 169 *Pterocaesio pisang*



Fig. 170 *Gerres oyena*

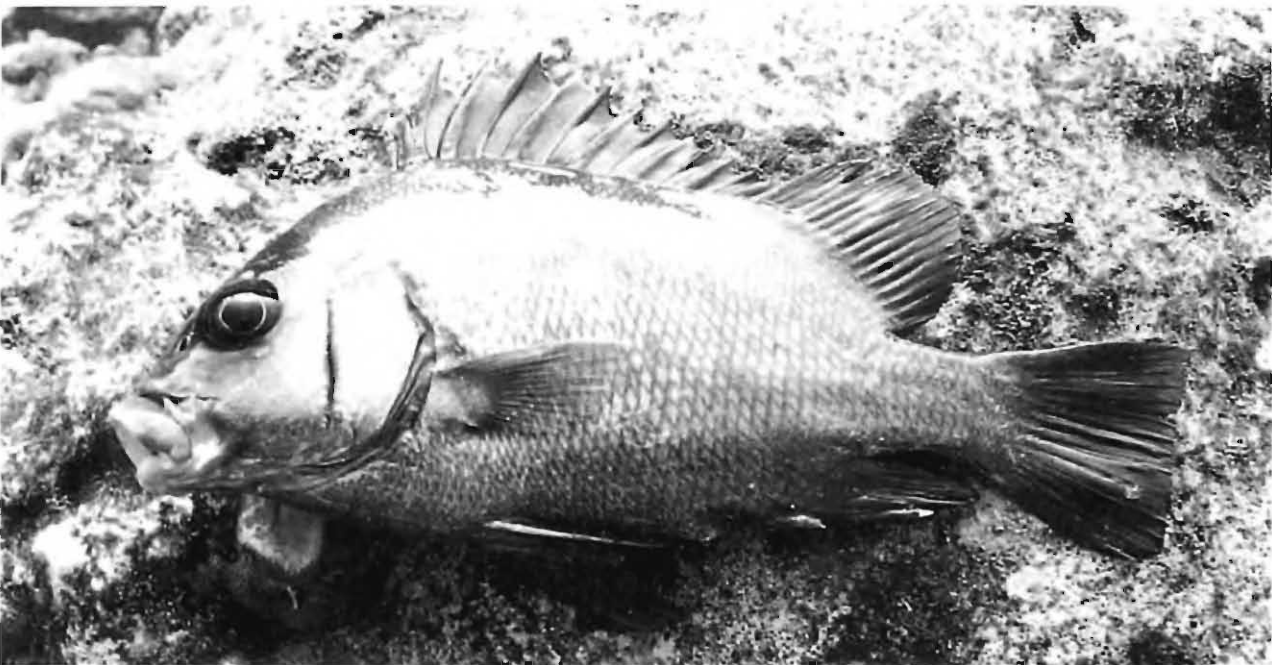


Fig. 171 *Plectorhinchus gibbosus*



Fig. 172 *Plectorhinchus orientalis*

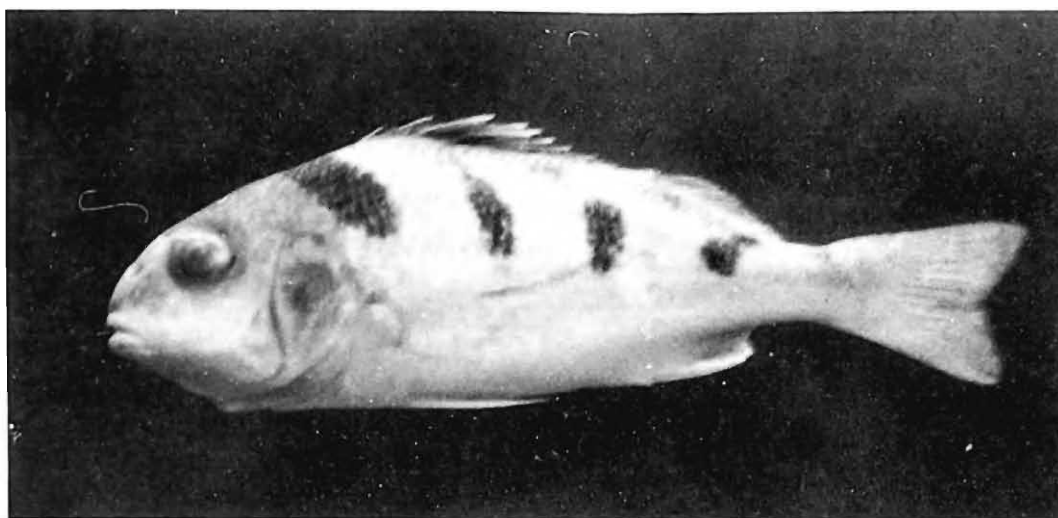


Fig. 173 *Pomadasys maculatum*

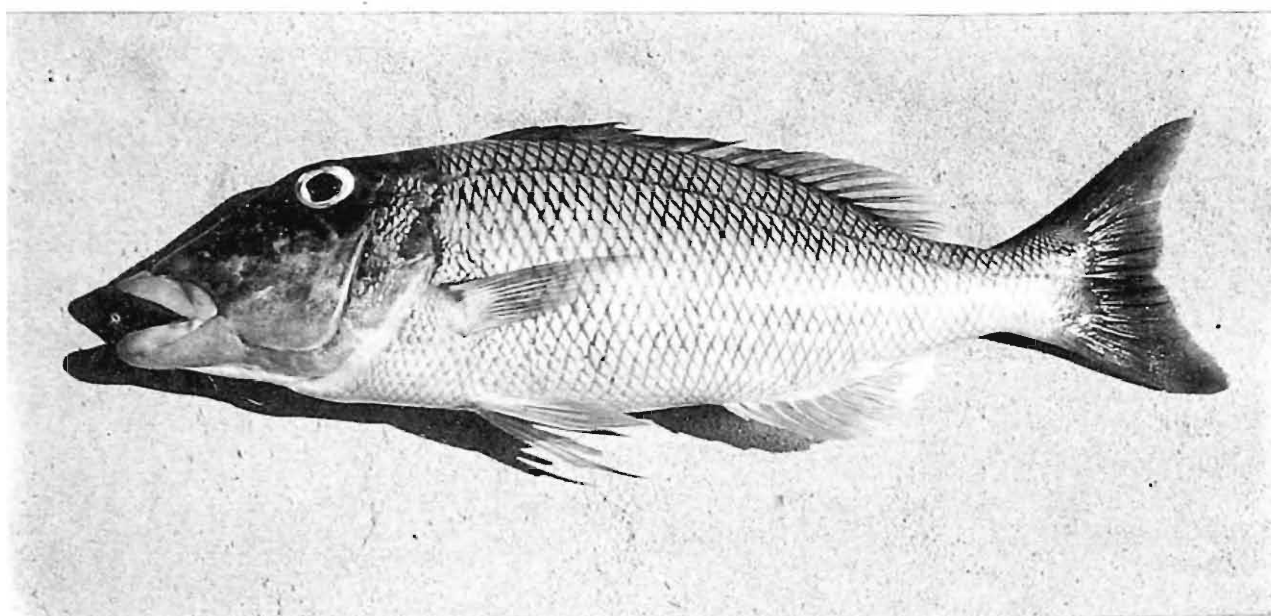


Fig. 174 *Lethrinus xanthurus*

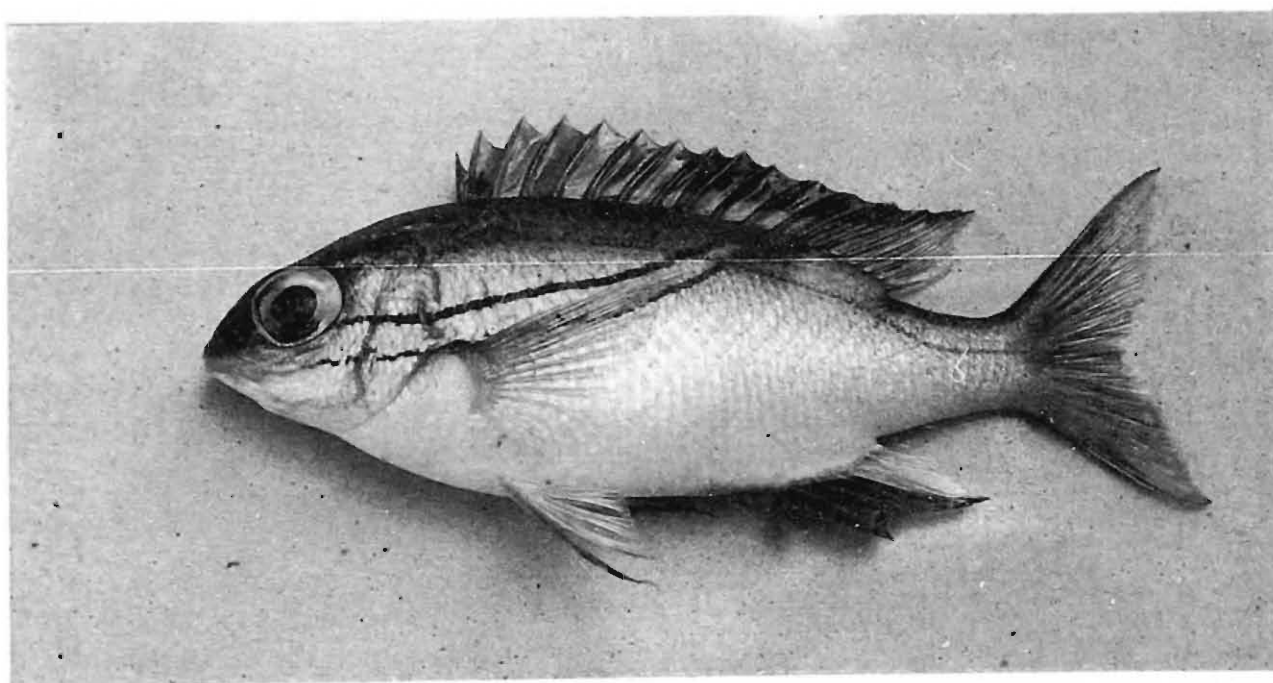


Fig. 175 *Scolopsis bilineatus*

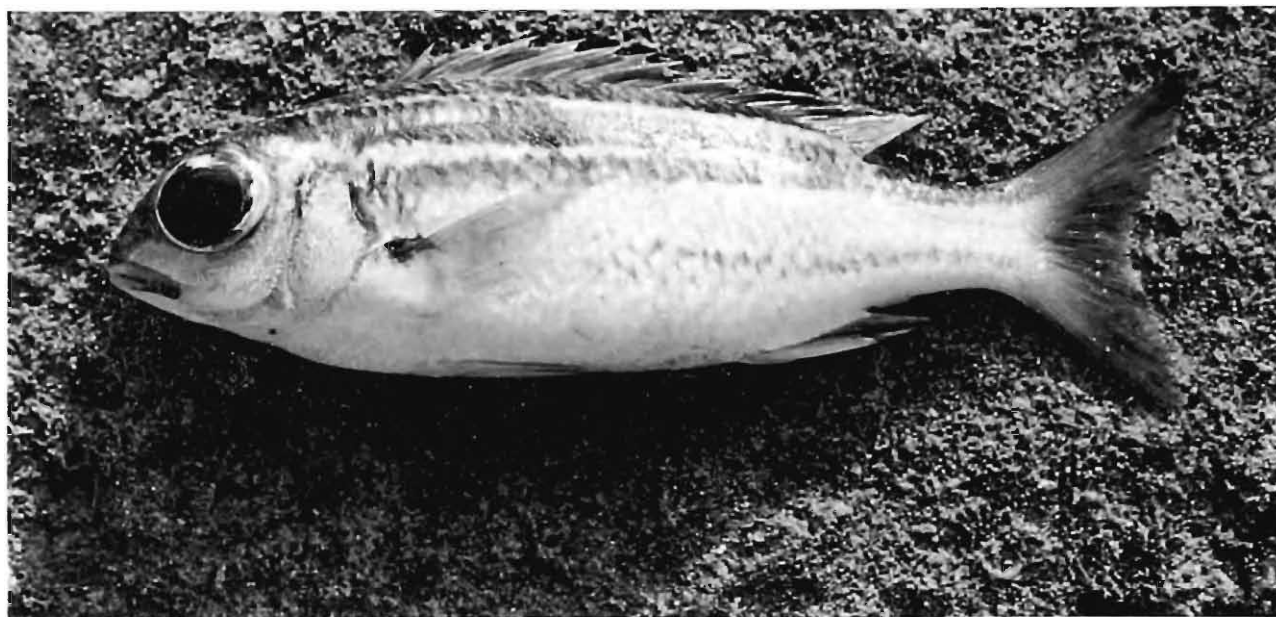


Fig. 176 *Scolopsis cancellatus*

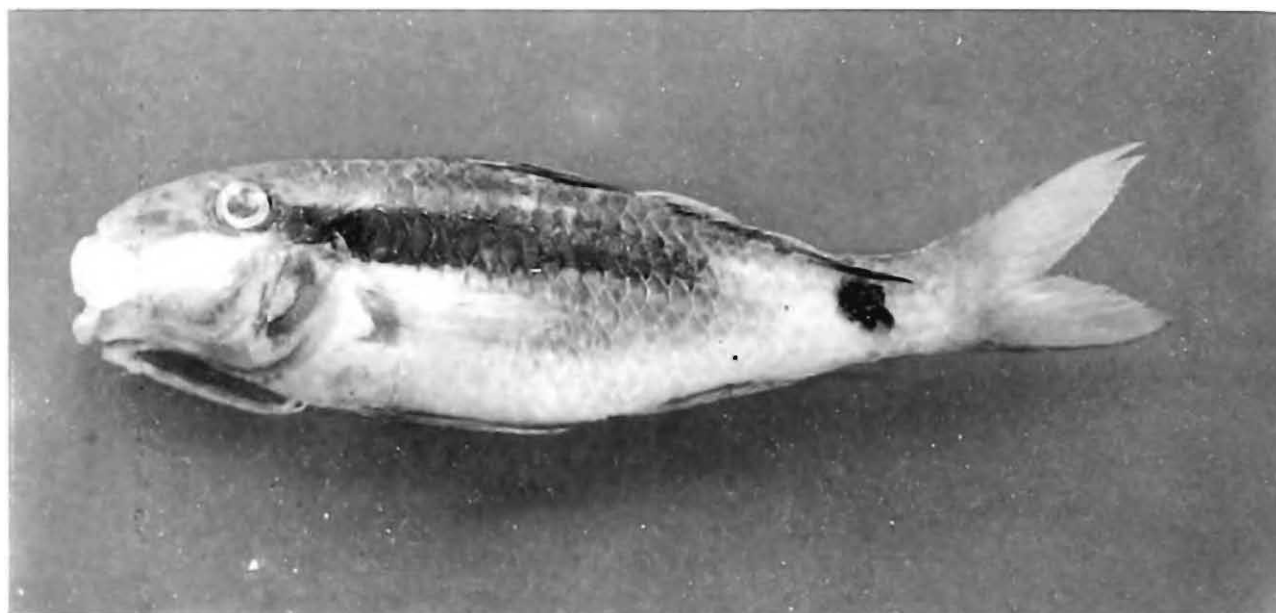


Fig. 177 *Parupeneus barberinus*



Fig. 178 *Parupeneus cinnabarinus*

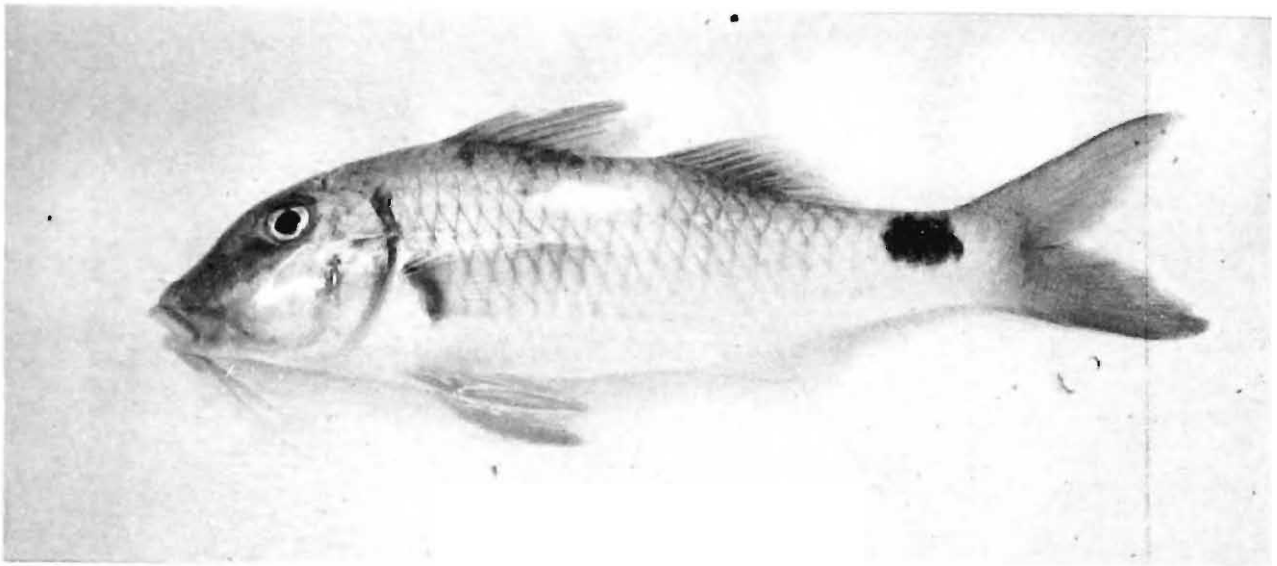


Fig. 179 *Parupeneus indicus*

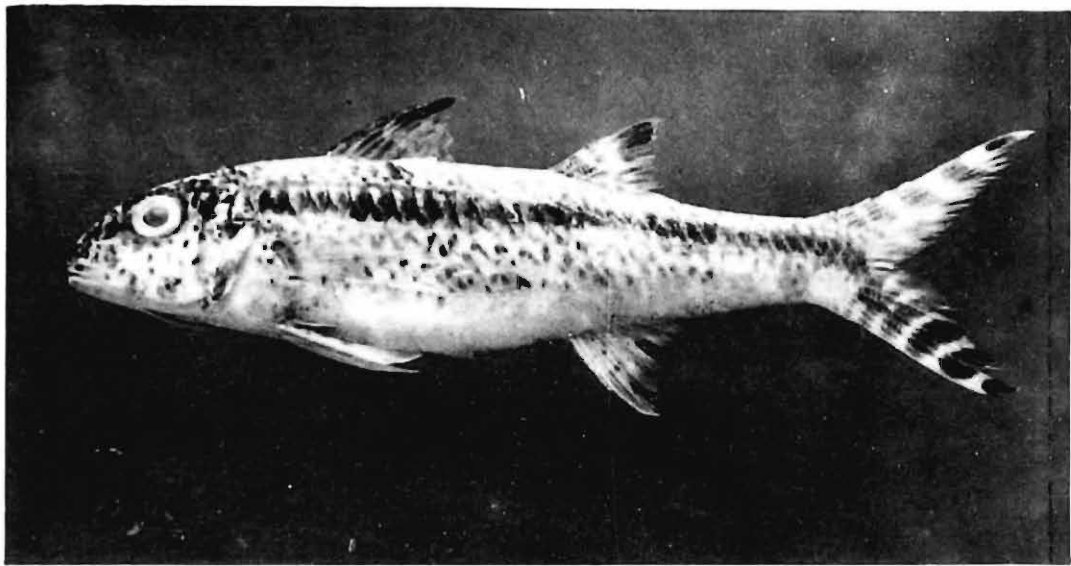


Fig. 180 *Upeneus tragula*

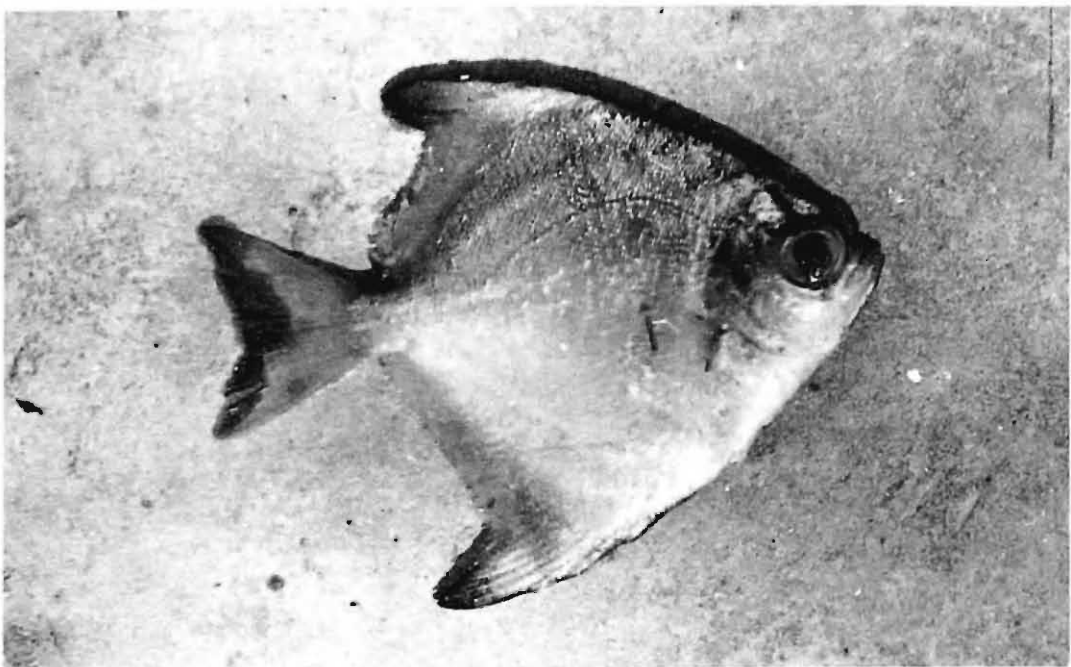


Fig. 181 *Monodactylus argenteus*

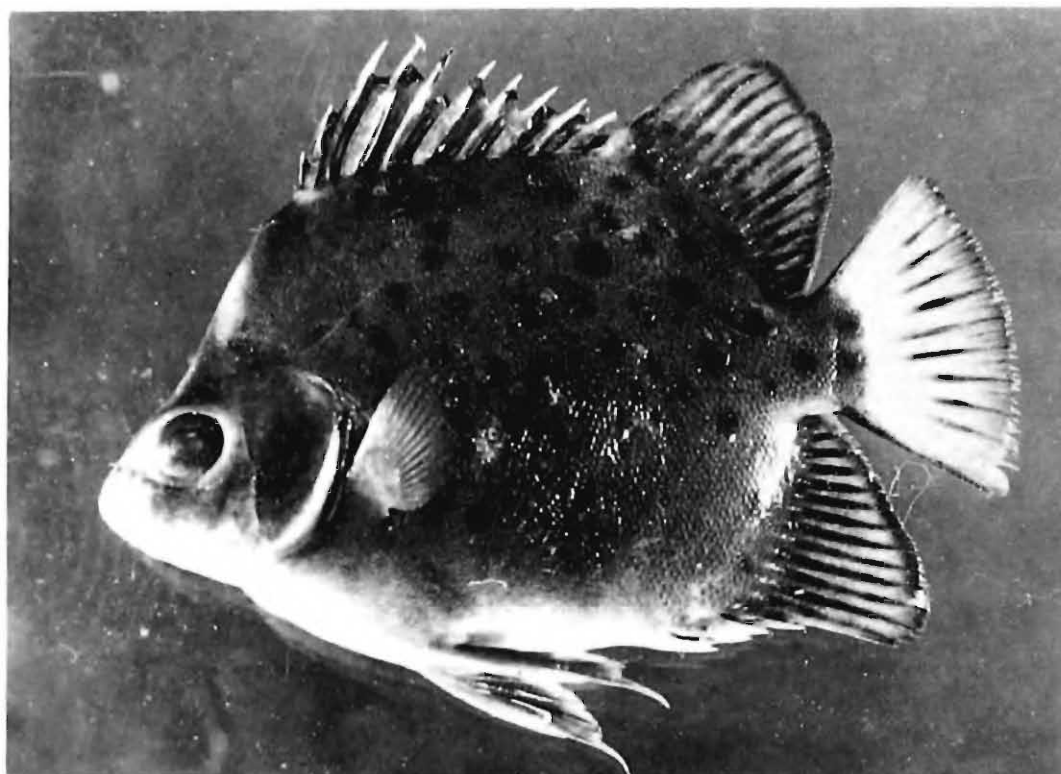


Fig. 182 *Scatophagus argus*

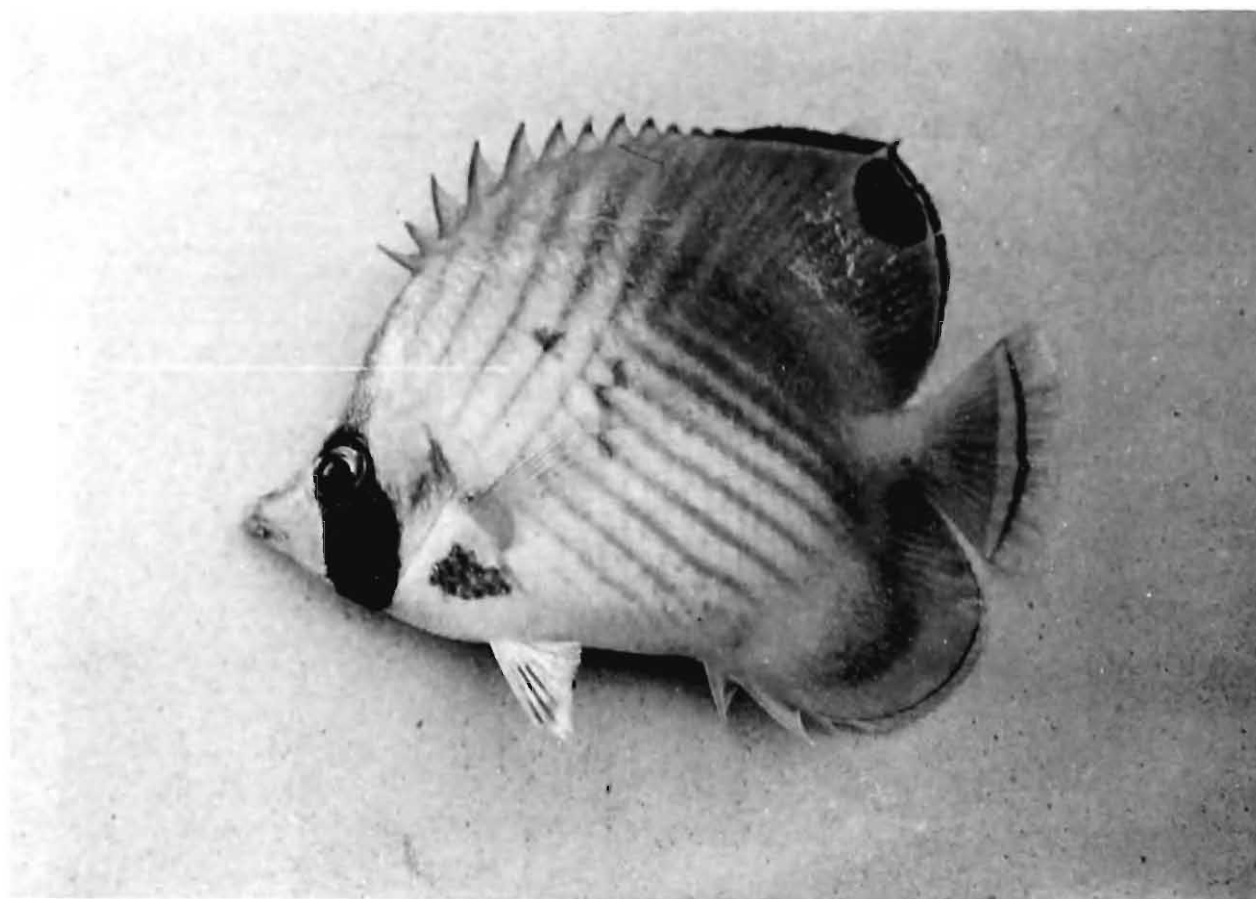


Fig. 183 *Chaetodon auriga*

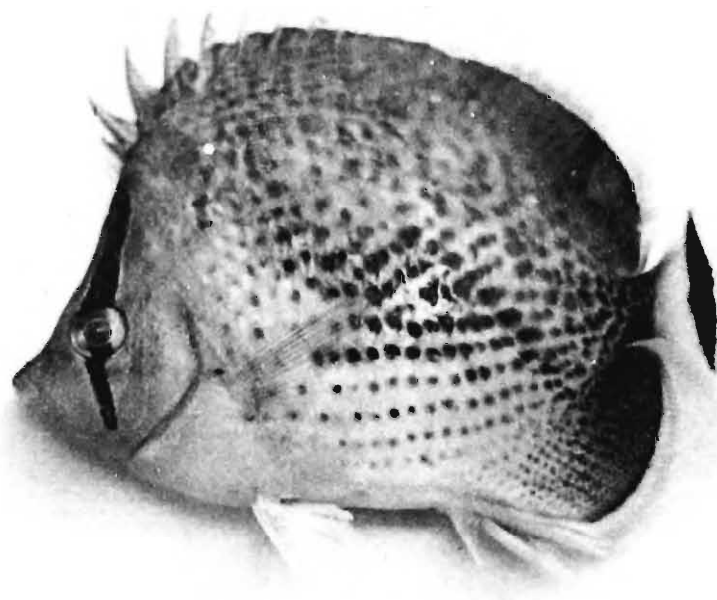


Fig. 184 *Chaetodon collaré*

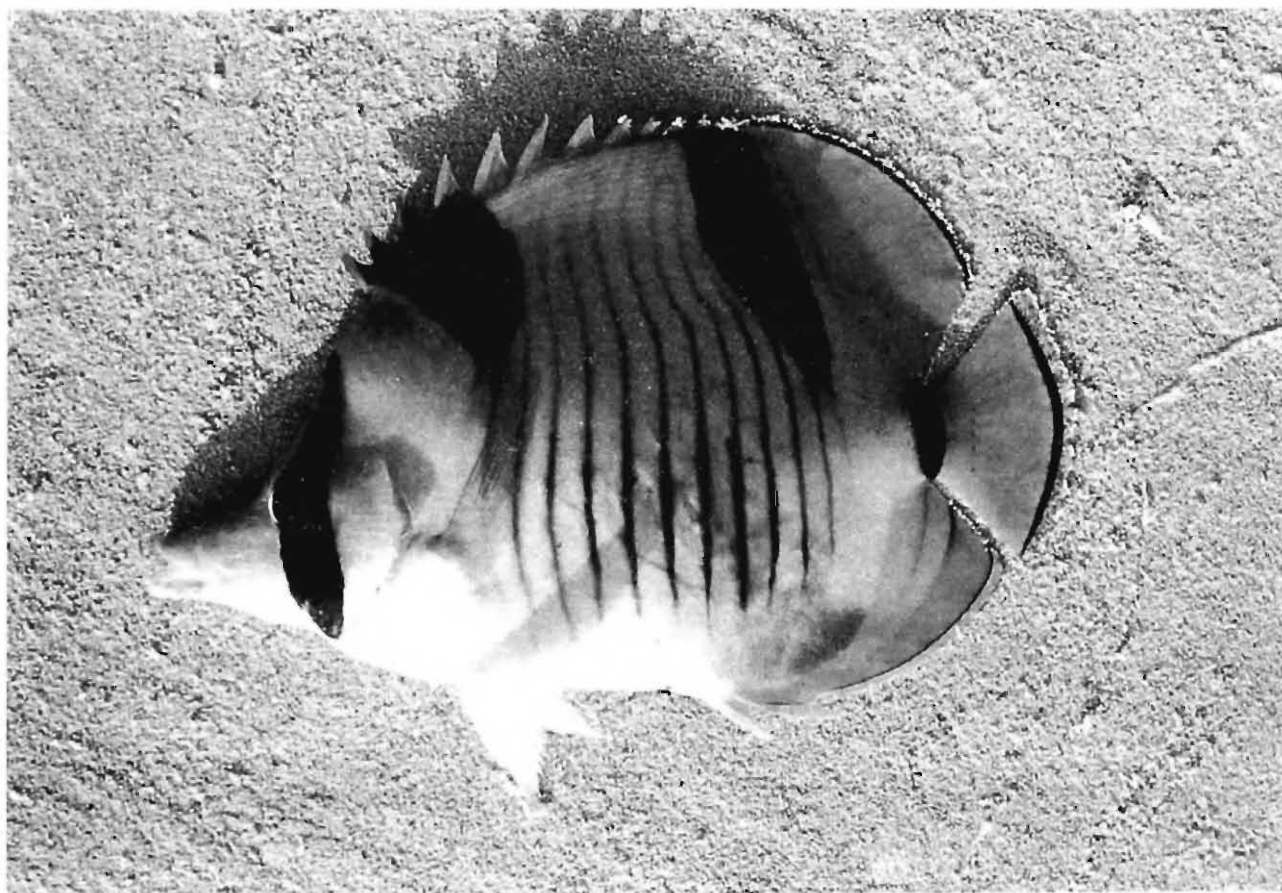


Fig. 185 *Chaetodon falcula*

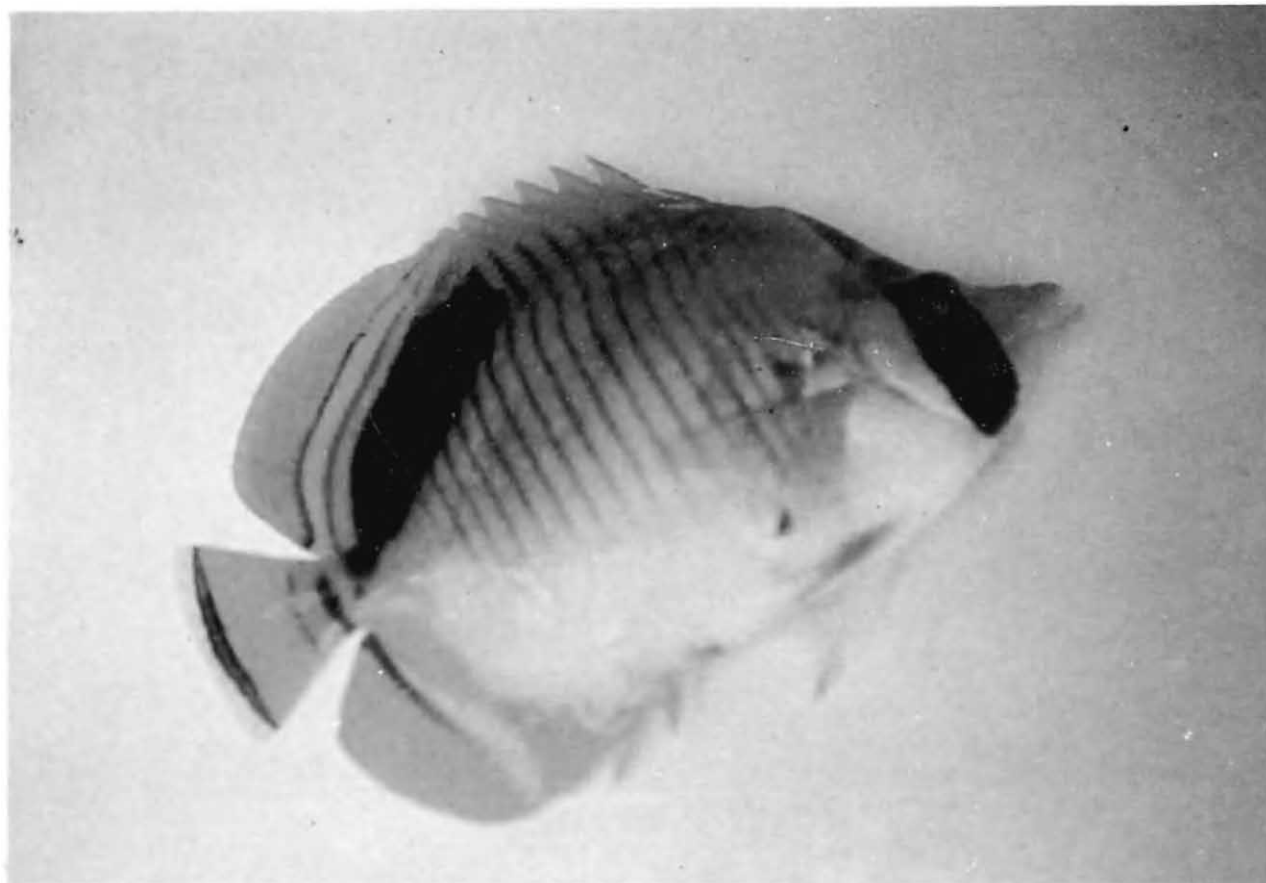


Fig. 186 *Chaetodon lineatus*

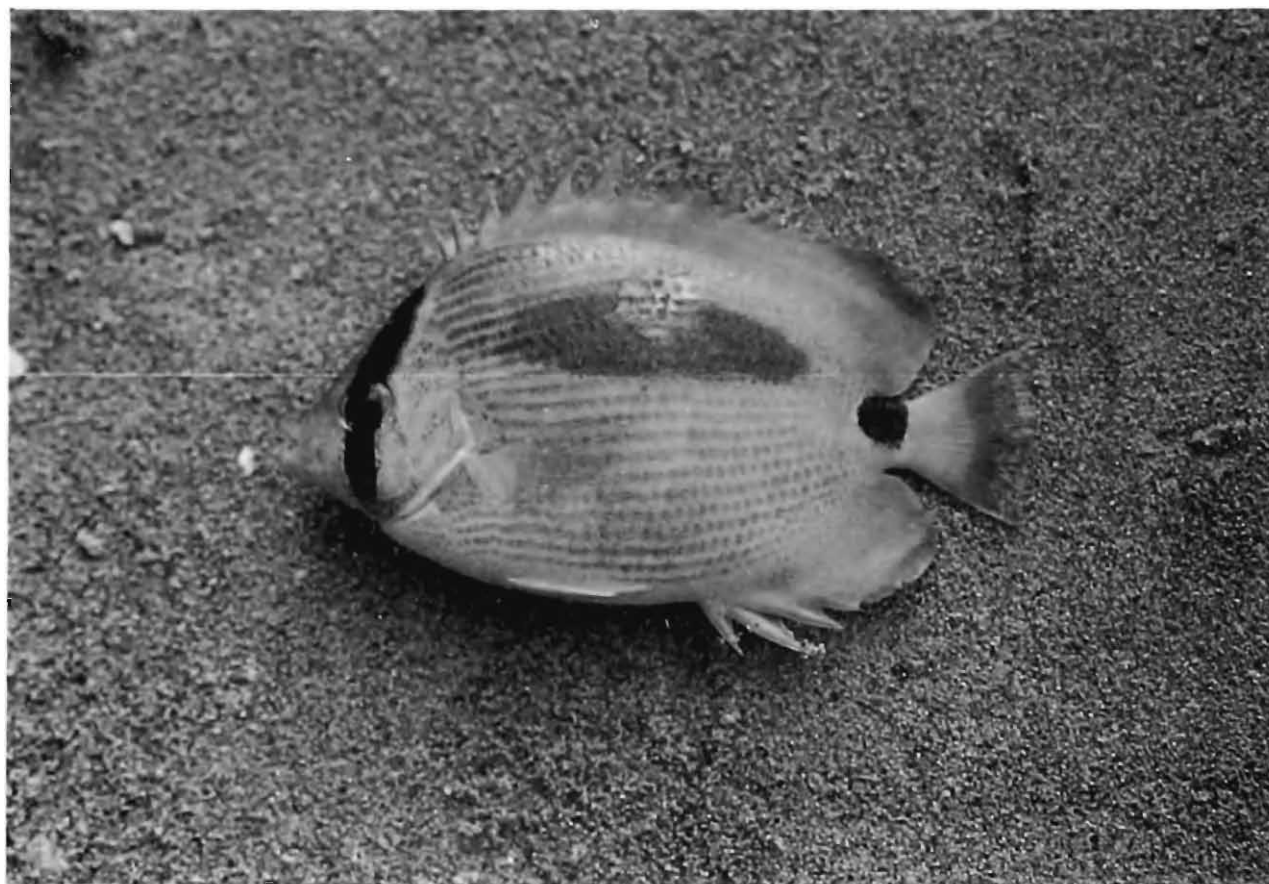


Fig. 187 *Chaetodon plebeius*

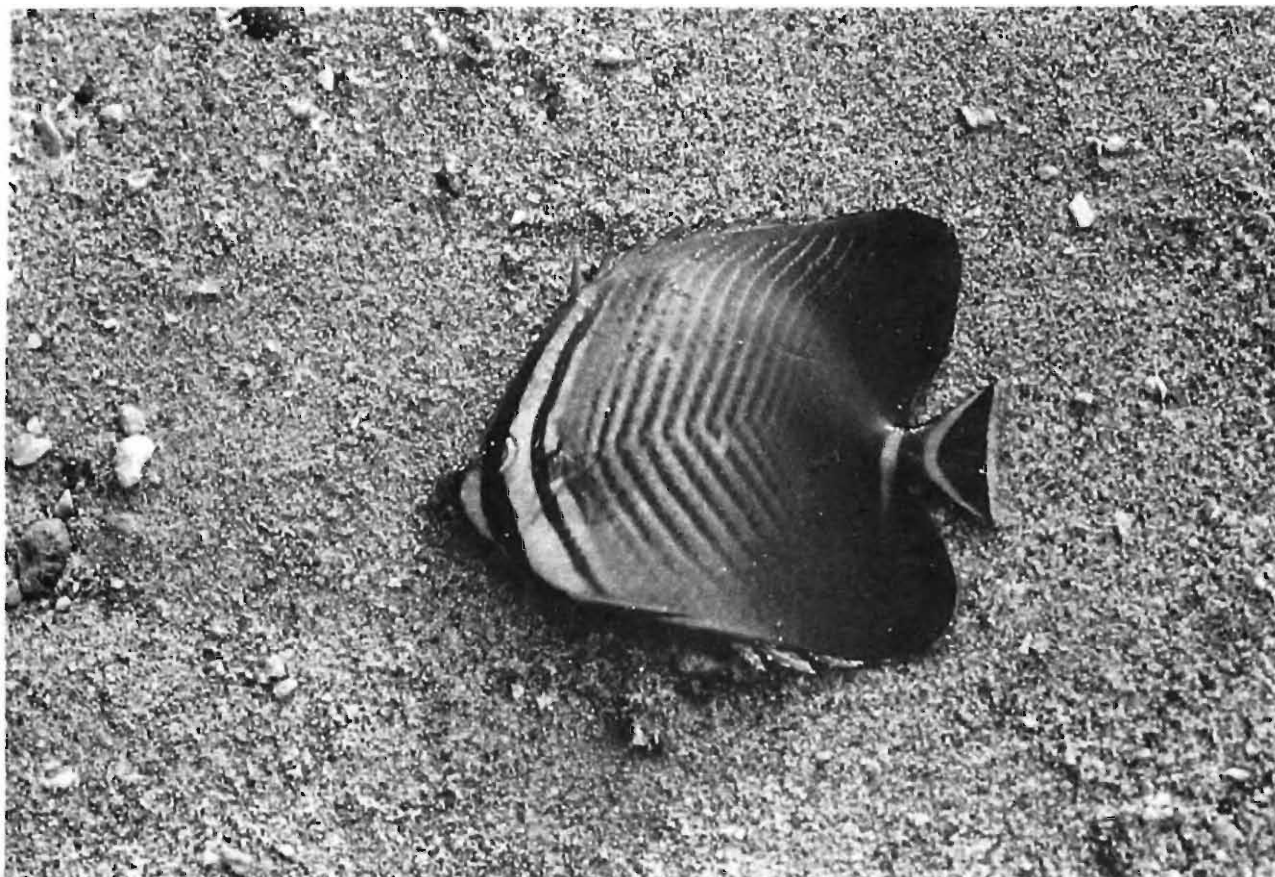


Fig. 188 *Chaetodon triangulum*

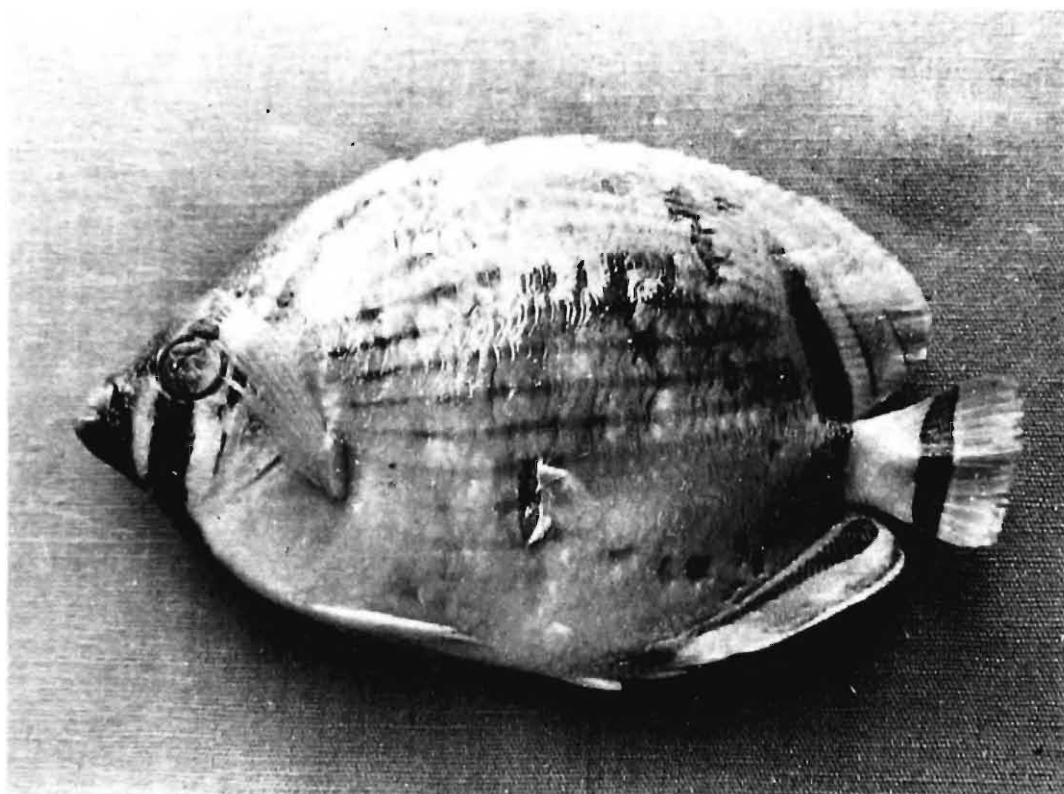


Fig. 189 *Chaetodon trifasciatus*

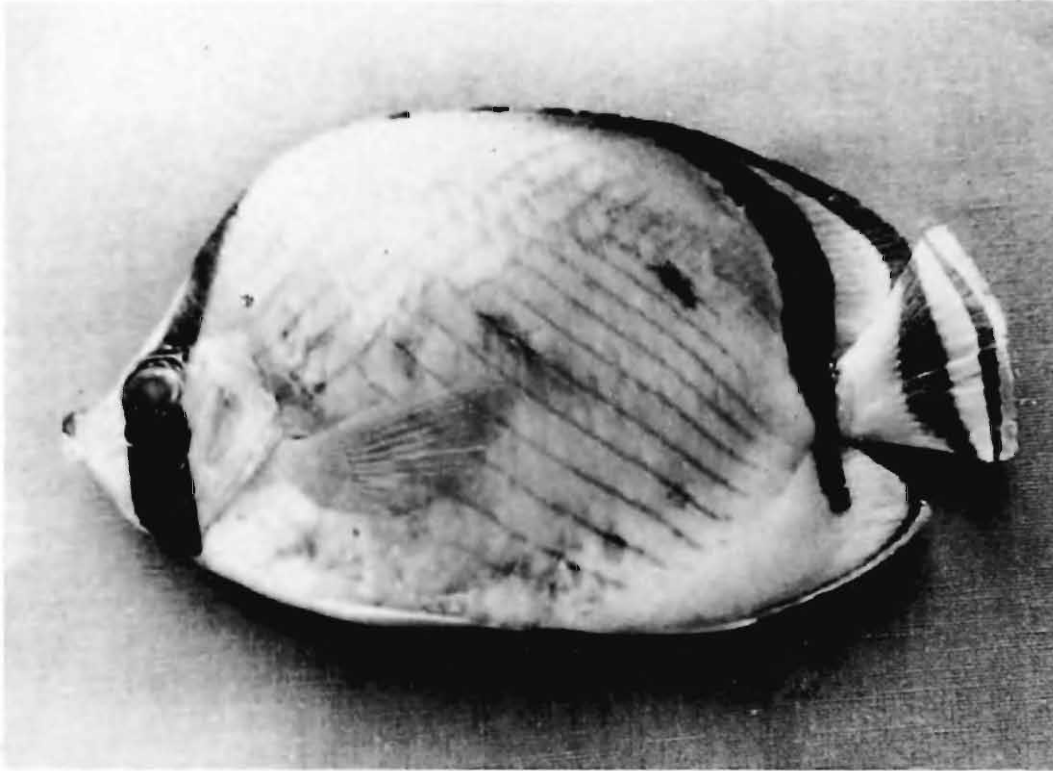


Fig. 190 *Chaetodon vagabundus*

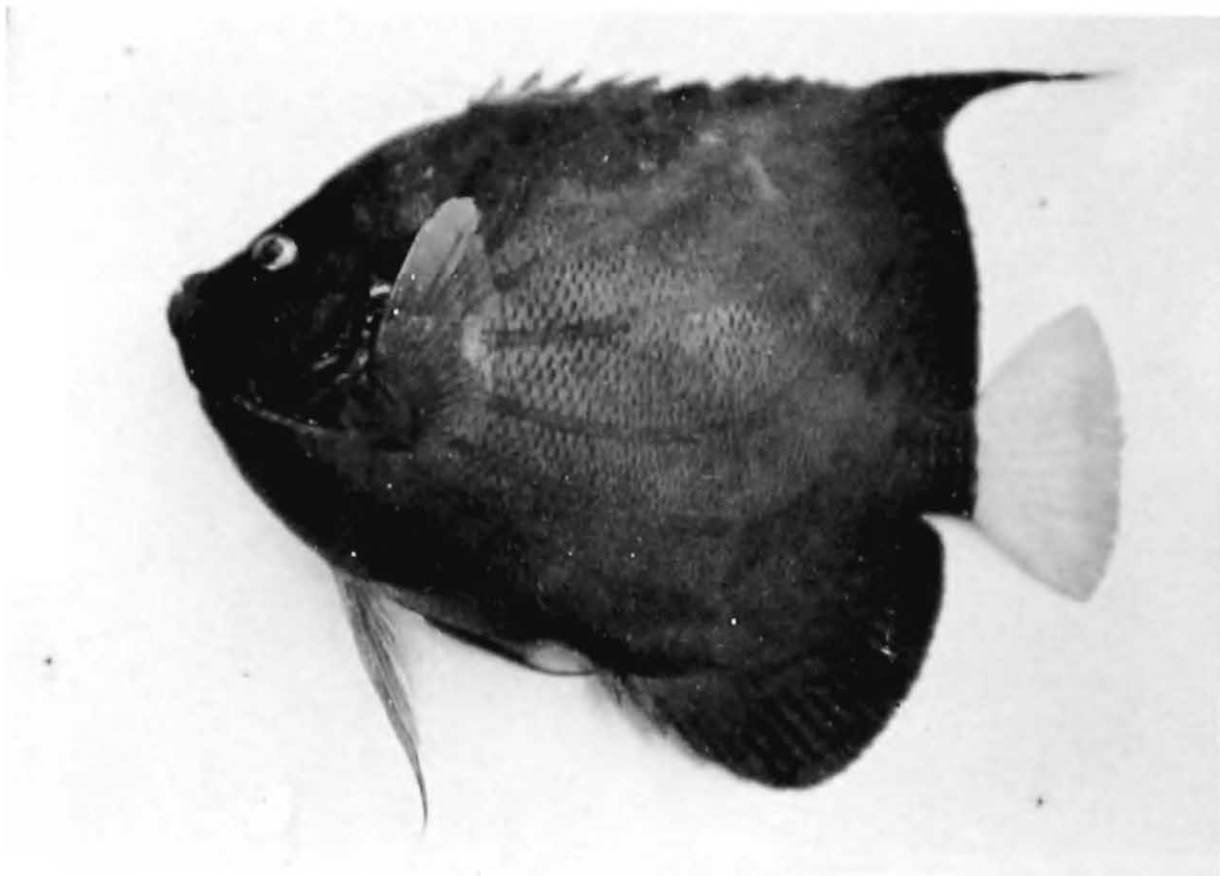


Fig. 191 *Pomacanthus annularis*

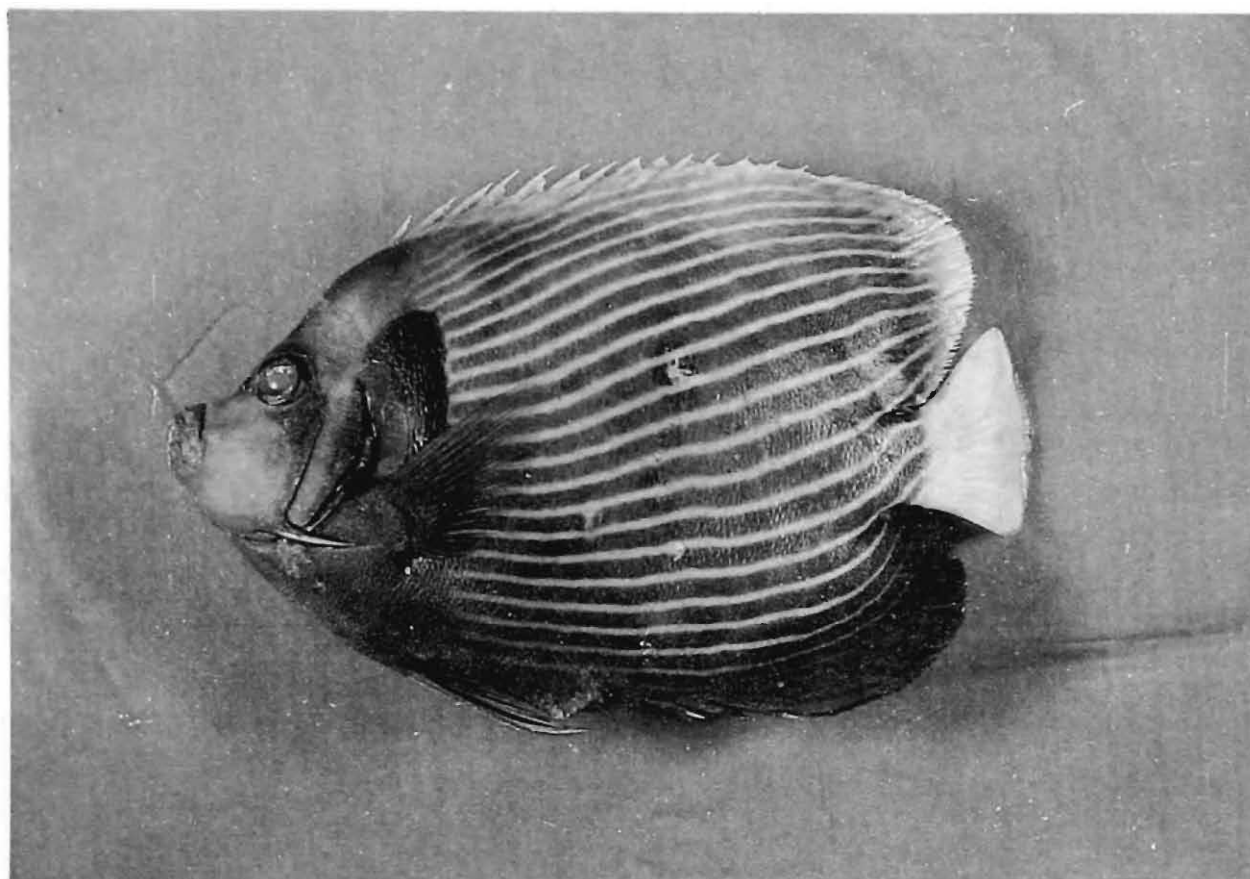


Fig. 192 *Pomacanthus imperator*

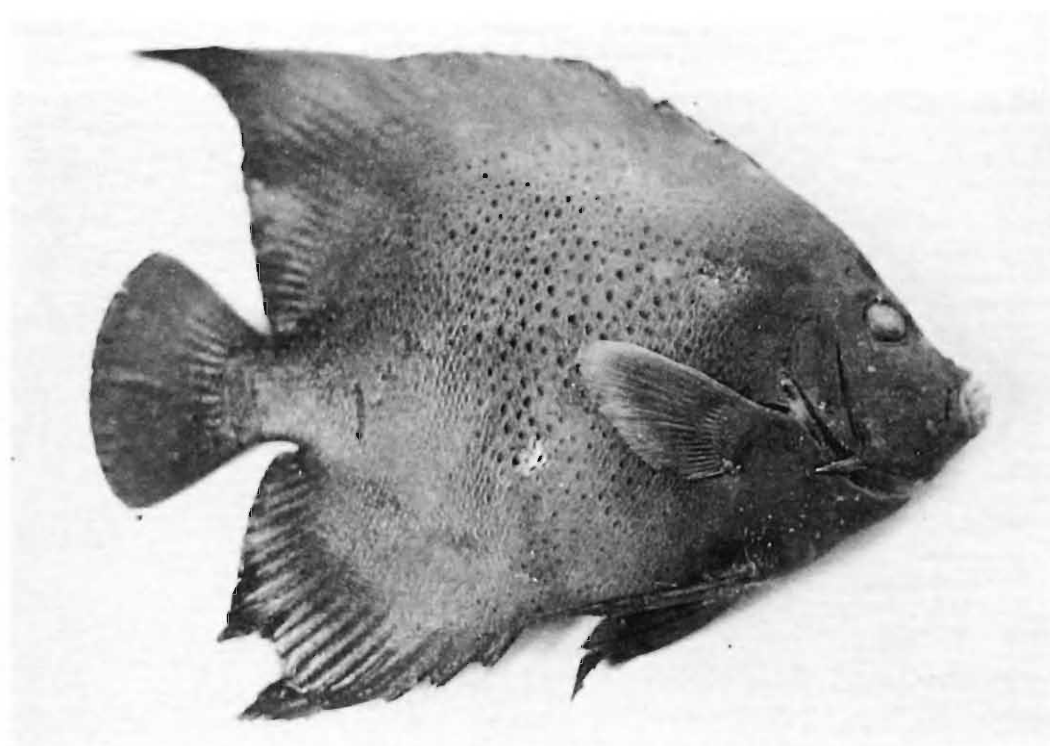


Fig. 193 *Pomacanthus semicirculatus* (Adult)



Fig. 194 *Pomacanthus semicirculatus* (Juvenile)



Fig. 195 *Abudeduf vaigiensis*

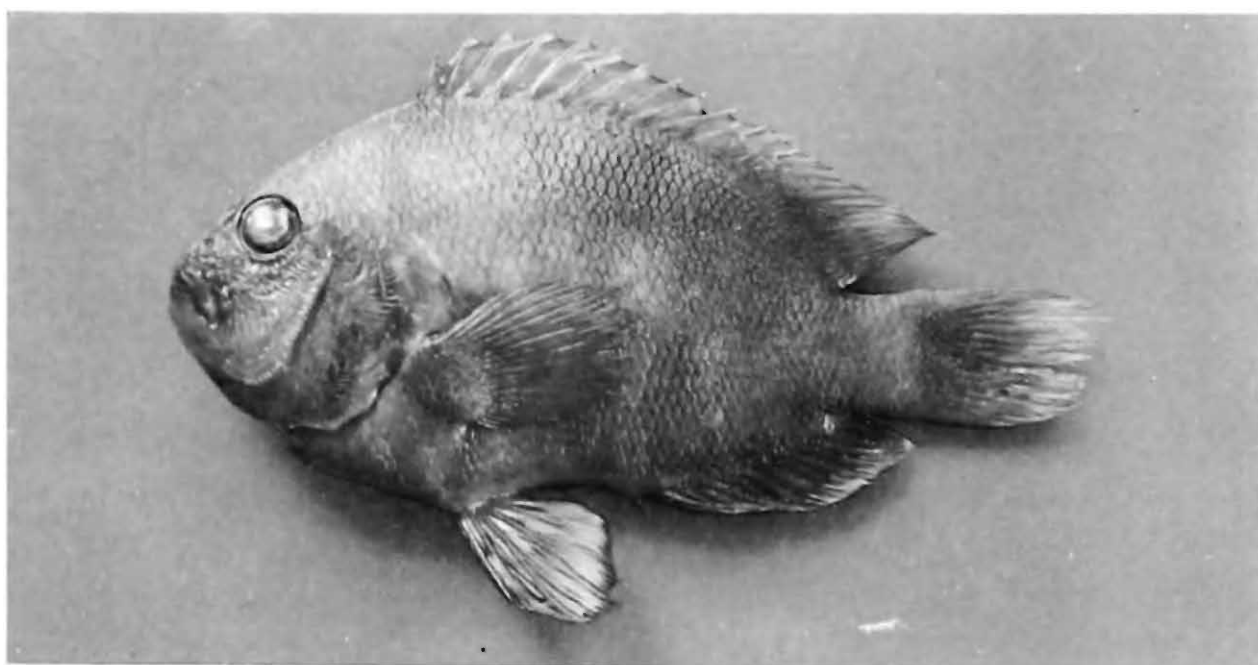


Fig. 196 *Amphiprion ephippium*

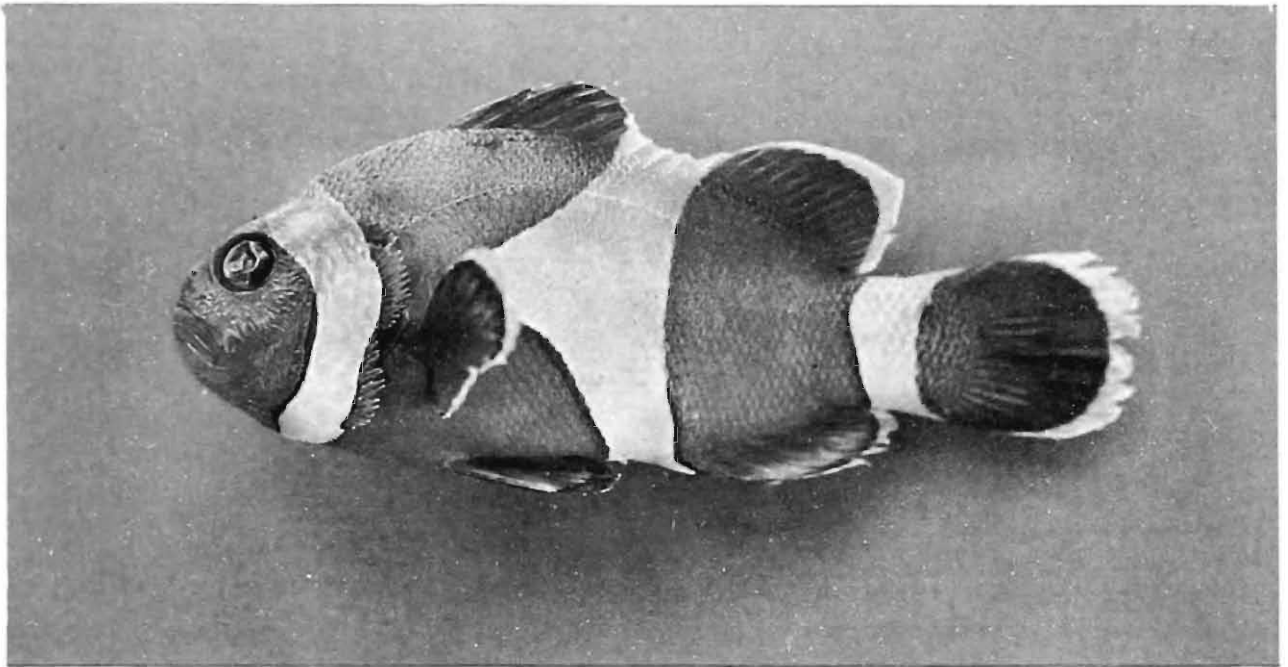


Fig. 197 *Amphiprion ocellaris*

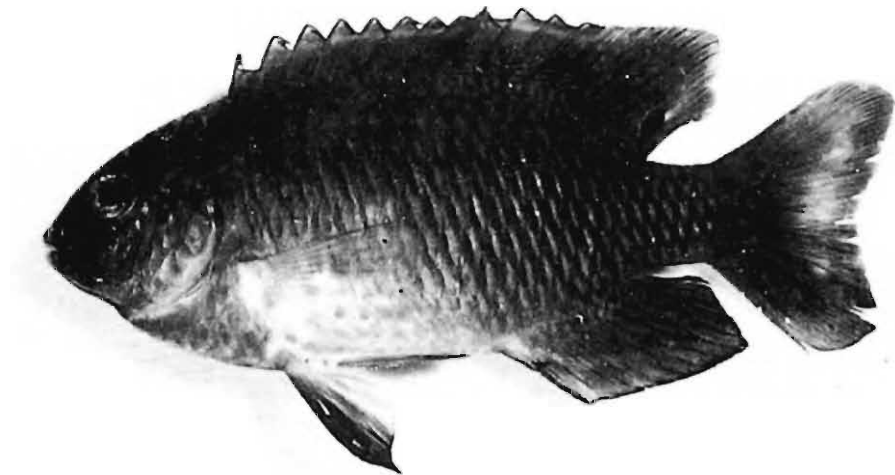


Fig. 198 *Chrysiptera unimaculata*

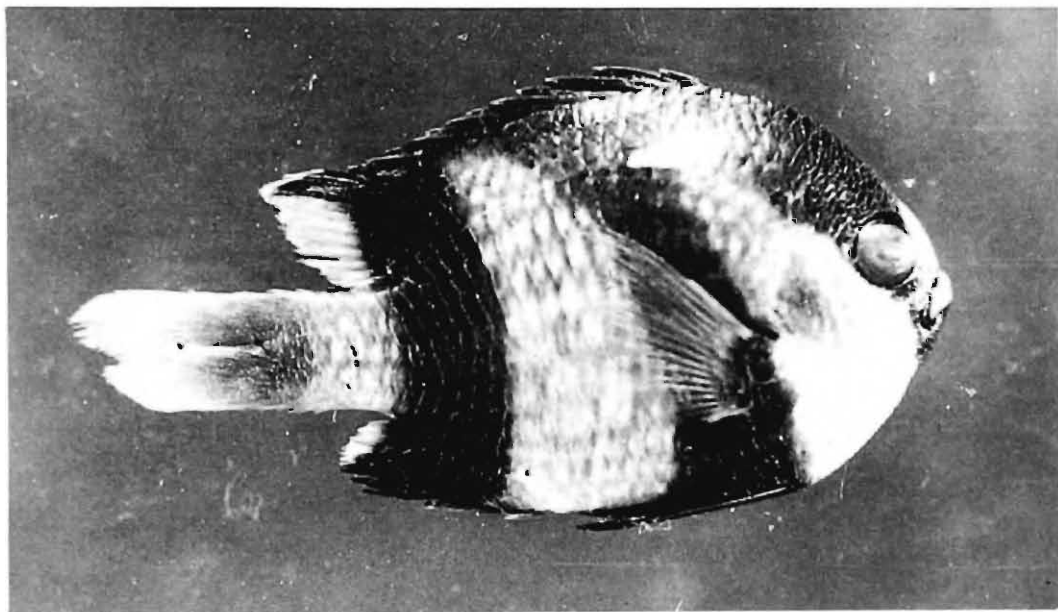


Fig. 199 *Dascyllus aruanus*

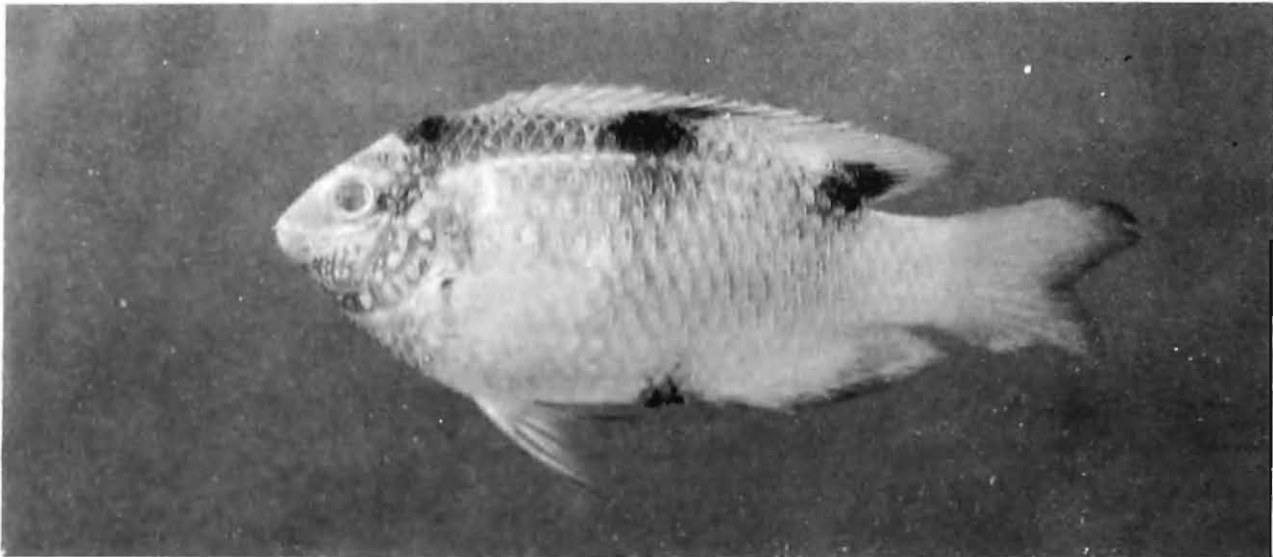


Fig. 200 *Dischistodus perspicillatus*

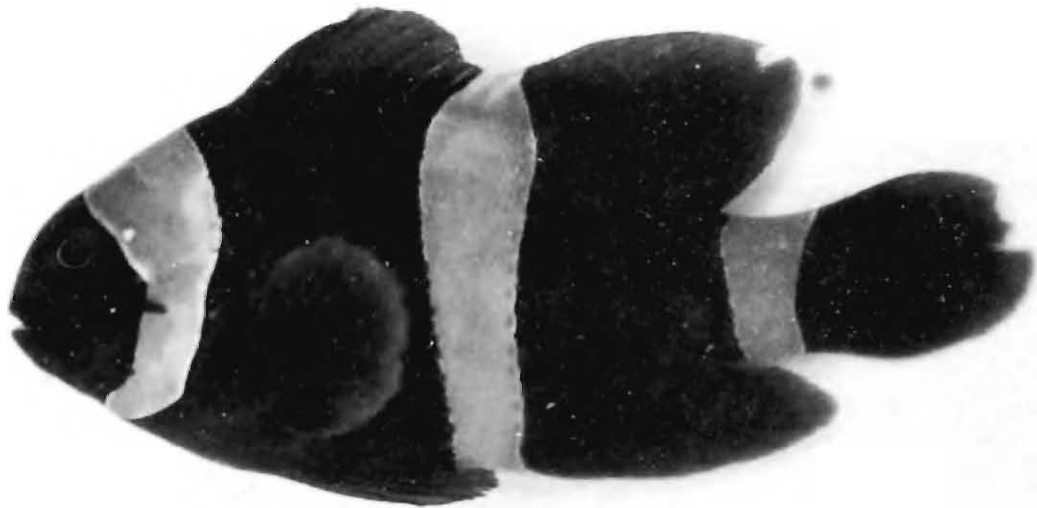


Fig. 201 *Premnas biaculeatus*

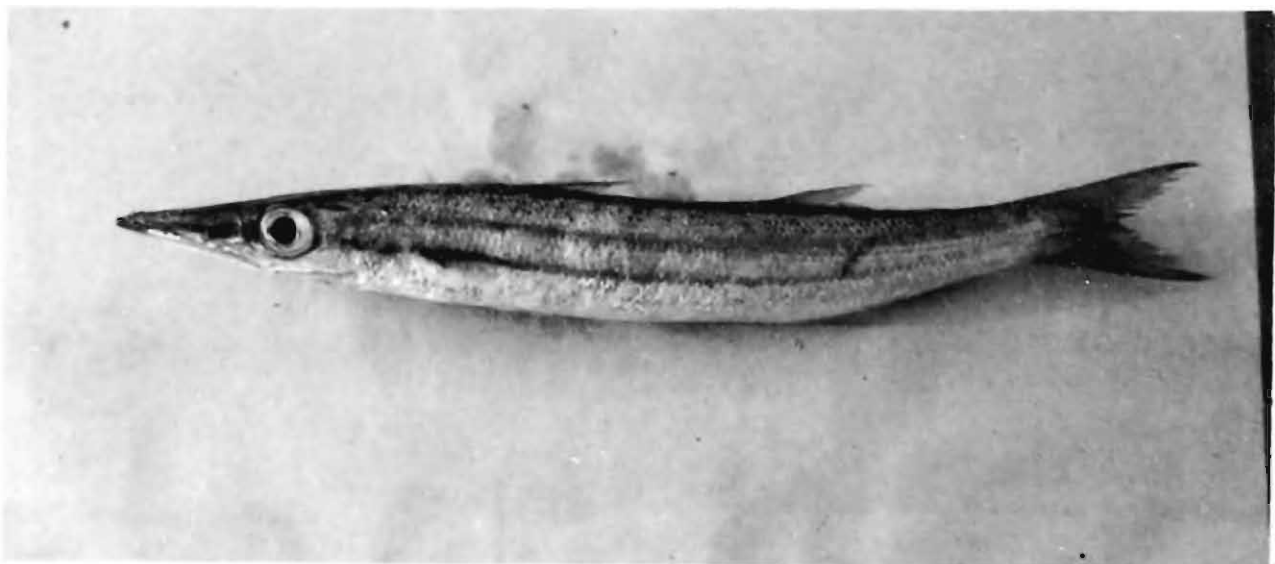


Fig. 202 *Sphyraena flavicauda*

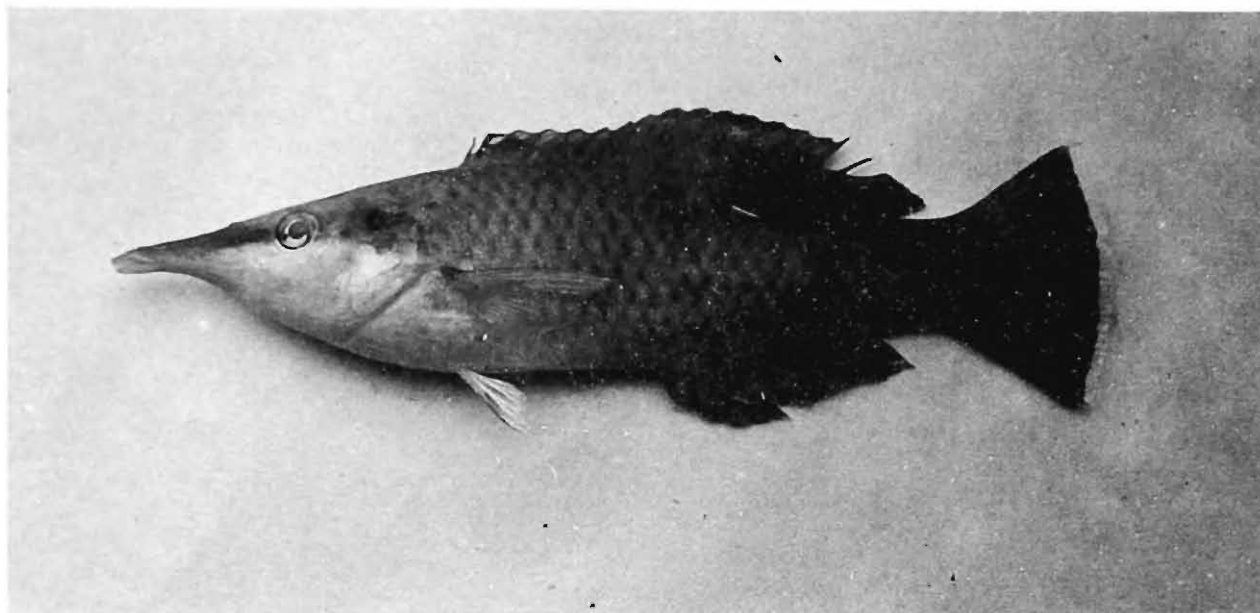


Fig. 203 *Gomphosus caeruleus*

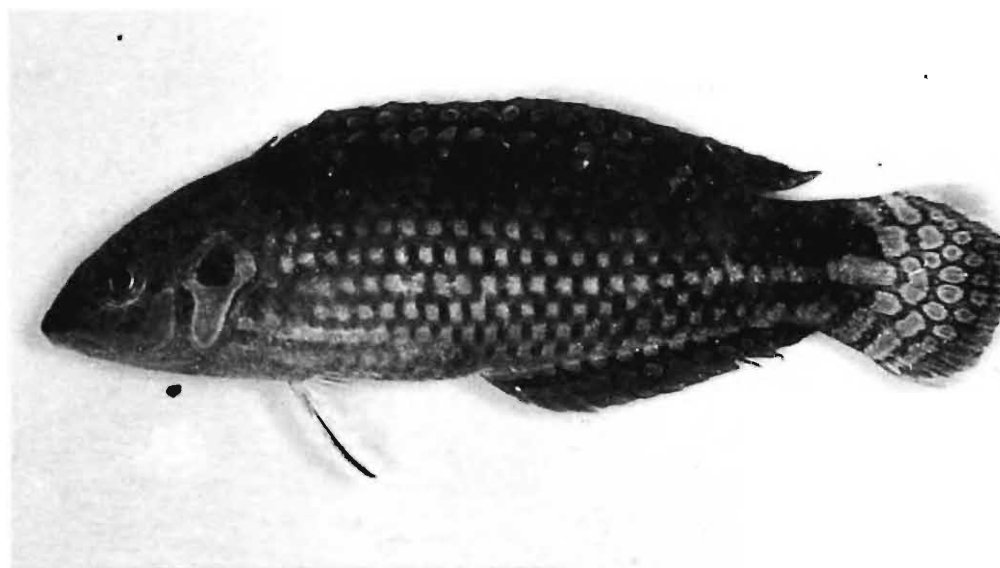


Fig. 204 *Halichoeres argus*

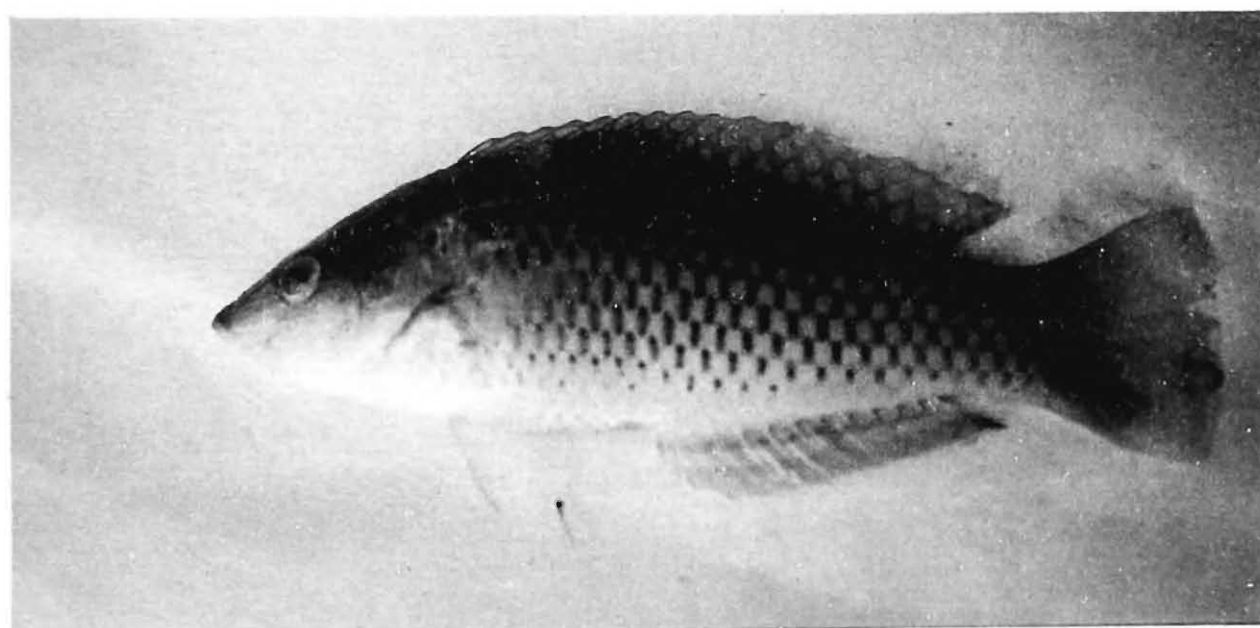


Fig. 205 *Halichoeres hortulanus*

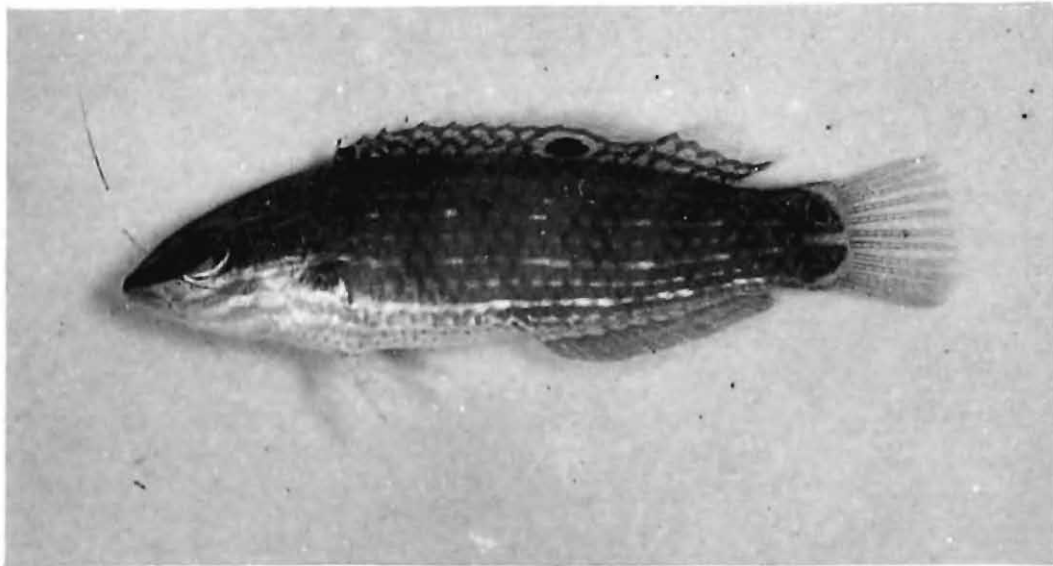


Fig. 206 *Halichoeres melanurus*



Fig. 207 *Halichoeres nebulosus*

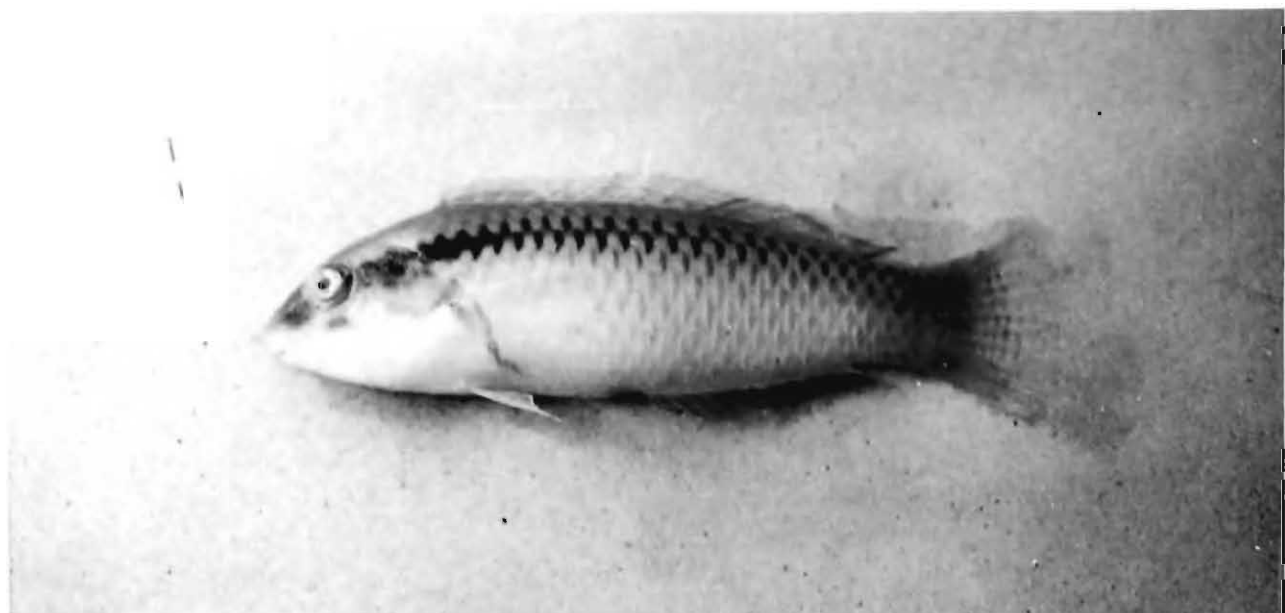


Fig. 208 *Halichoeres scapularis*

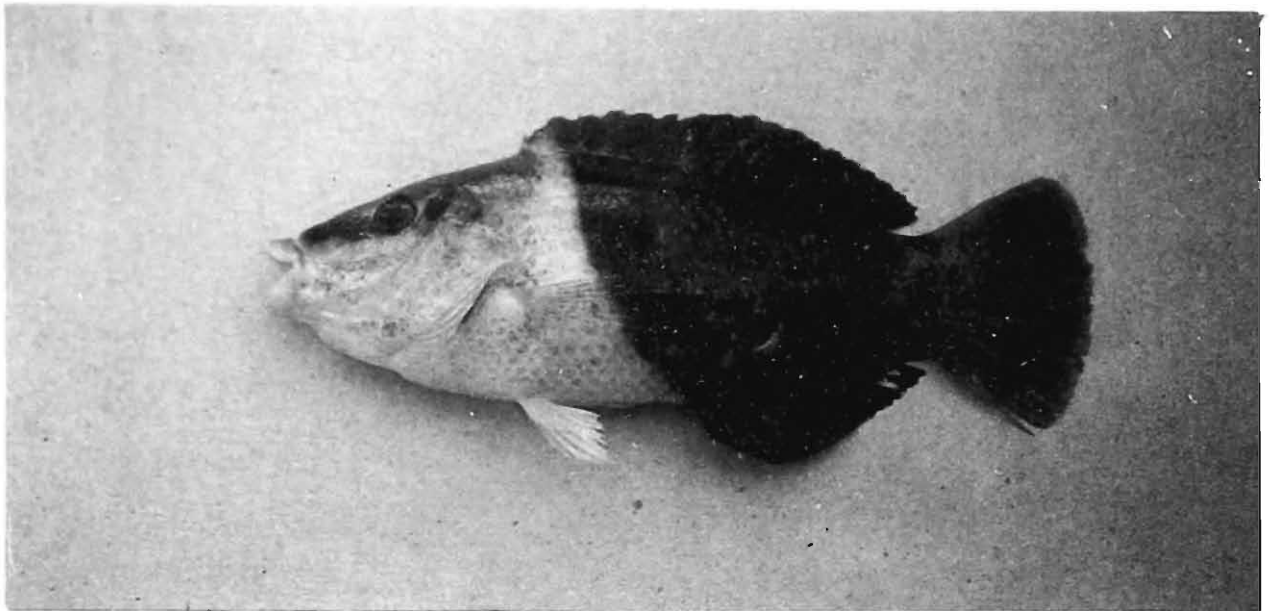


Fig. 209 *Hemigymnus melanopterus*

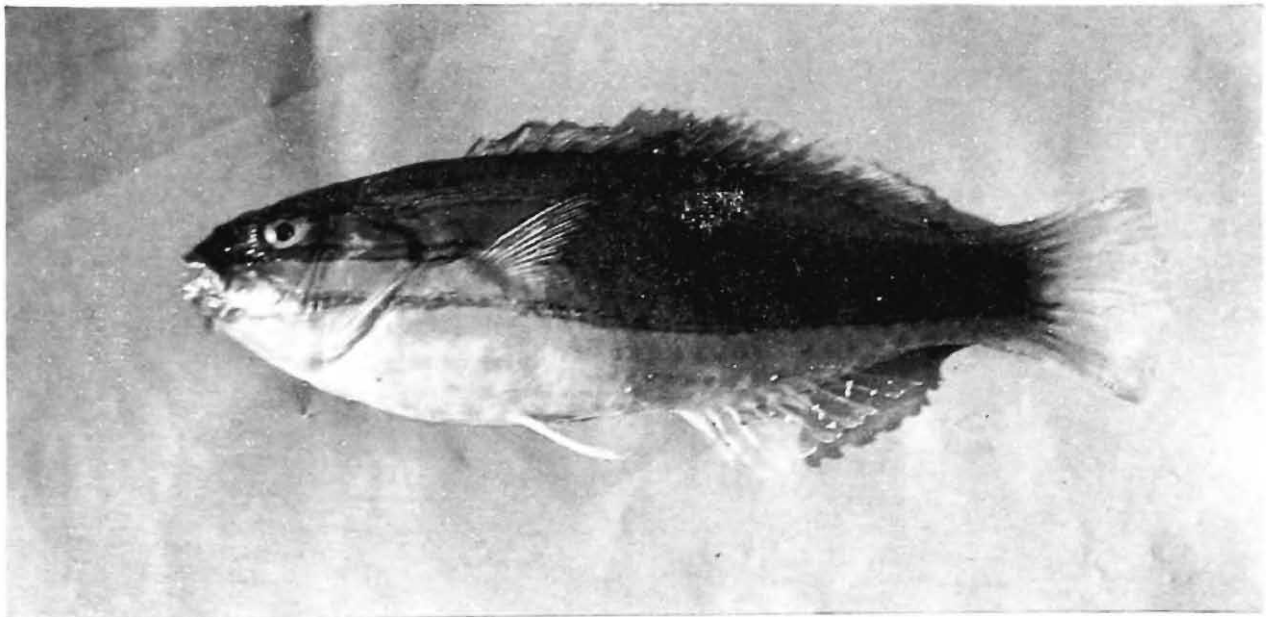


Fig. 210 *Stethojulis trilineata*

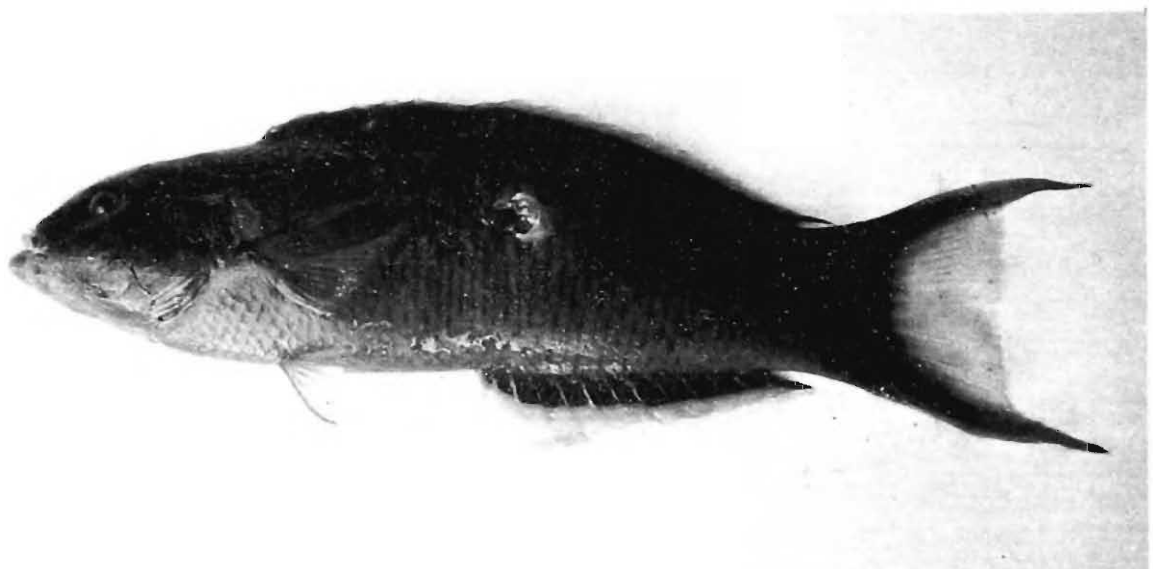


Fig. 211 *Thalassoma lunare*

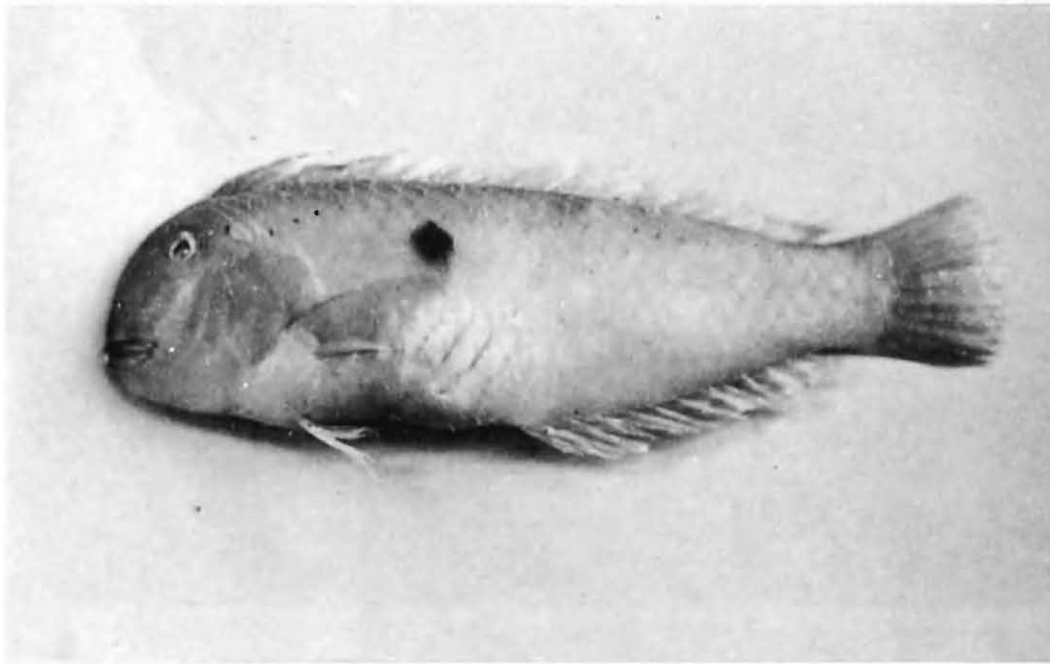


Fig. 212 *Xyrichthys pentadactylus*



Fig. 213 *Scarus ghobban*



Fig. 214 *Scarus rubroviolaceus*

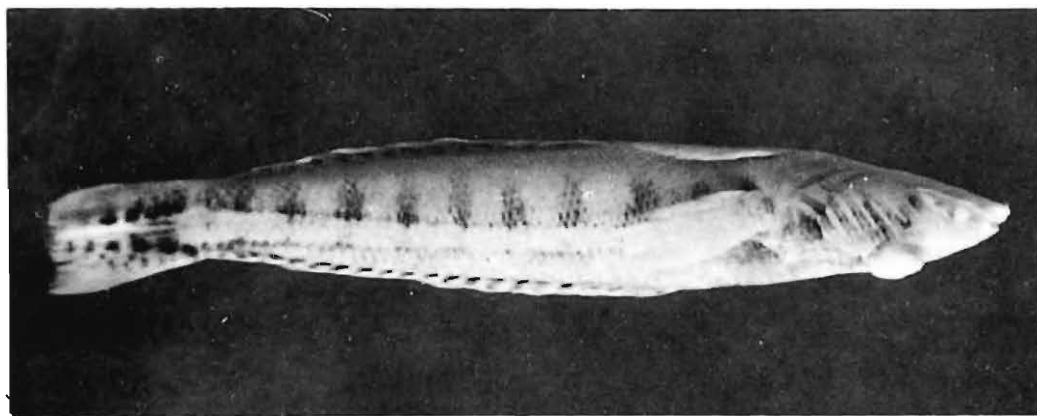


Fig. 215 *Parapercis clathrata*



Fig. 216 *Blenniella periophthalmus*

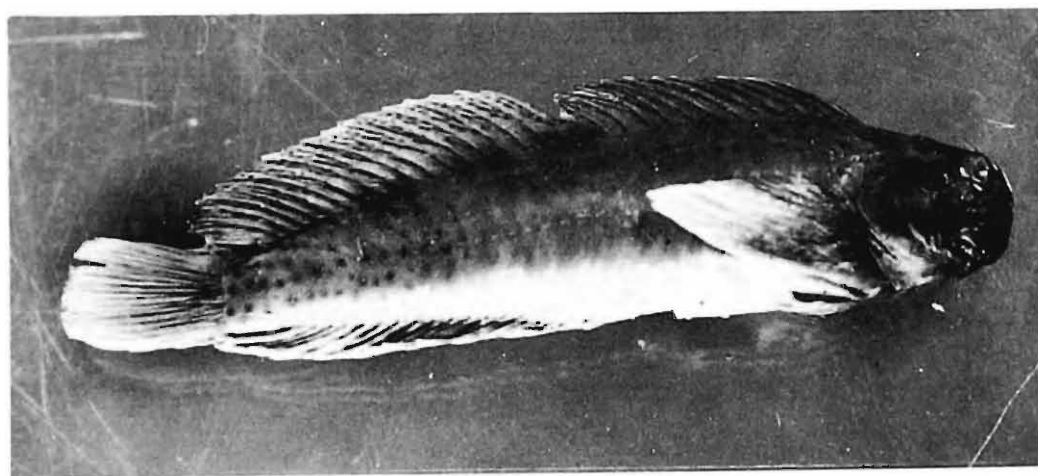


Fig. 217 *Istiblennius edentulus*

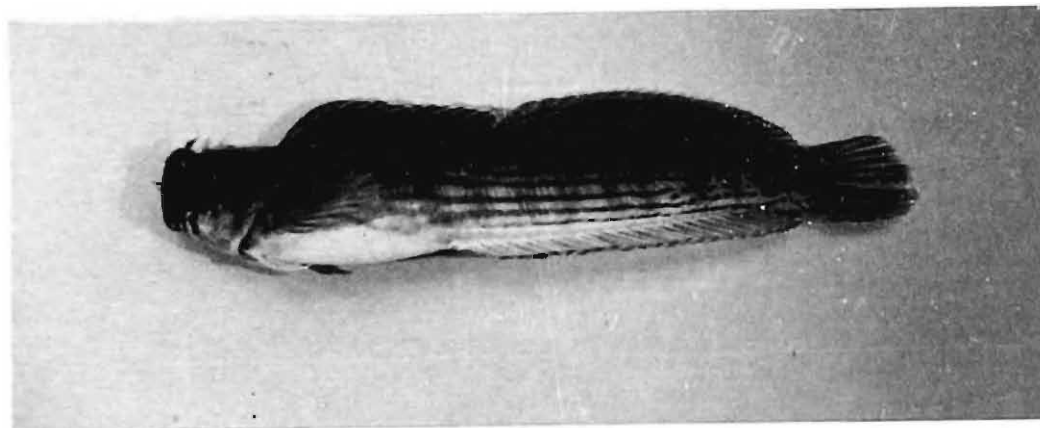


Fig. 218 *Istiblennius lineatus*

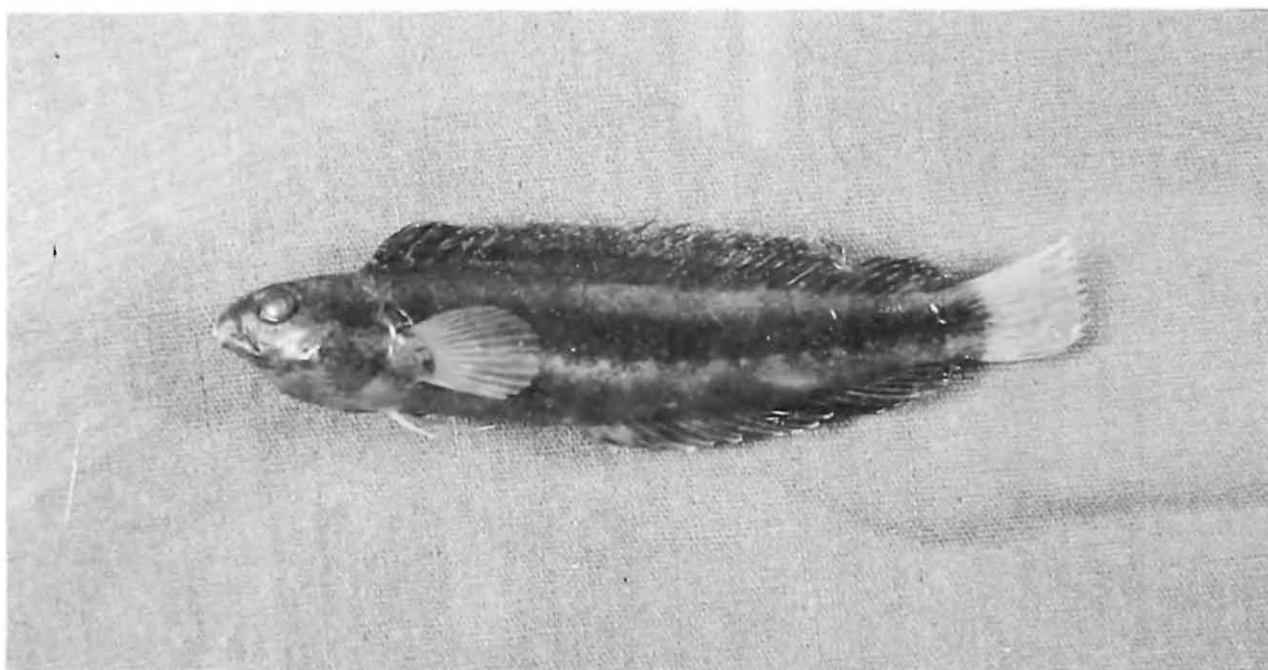


Fig. 219 *Pteroscirtes breviceps*

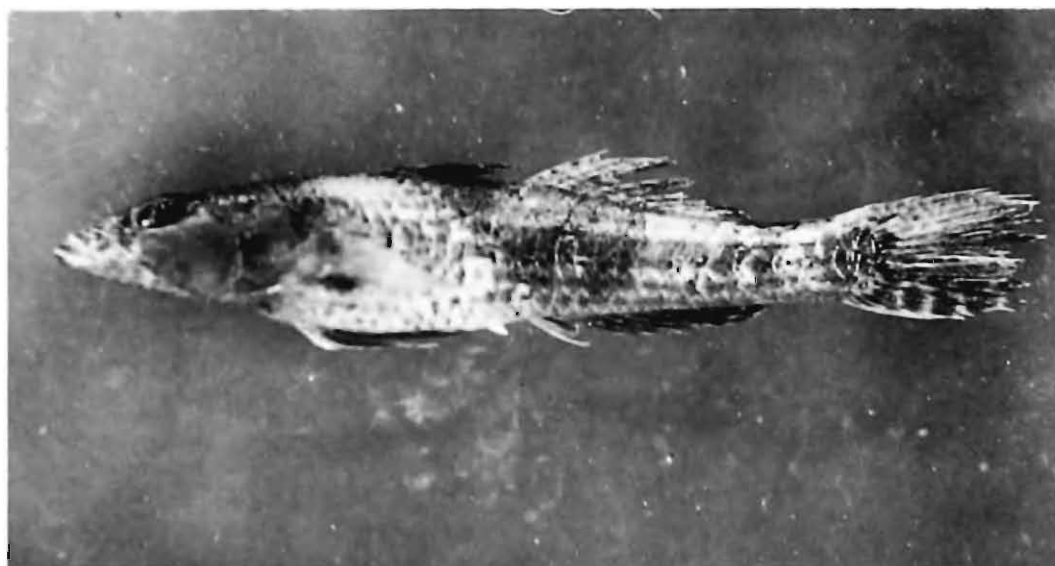


Fig. 220 *Butis butis*

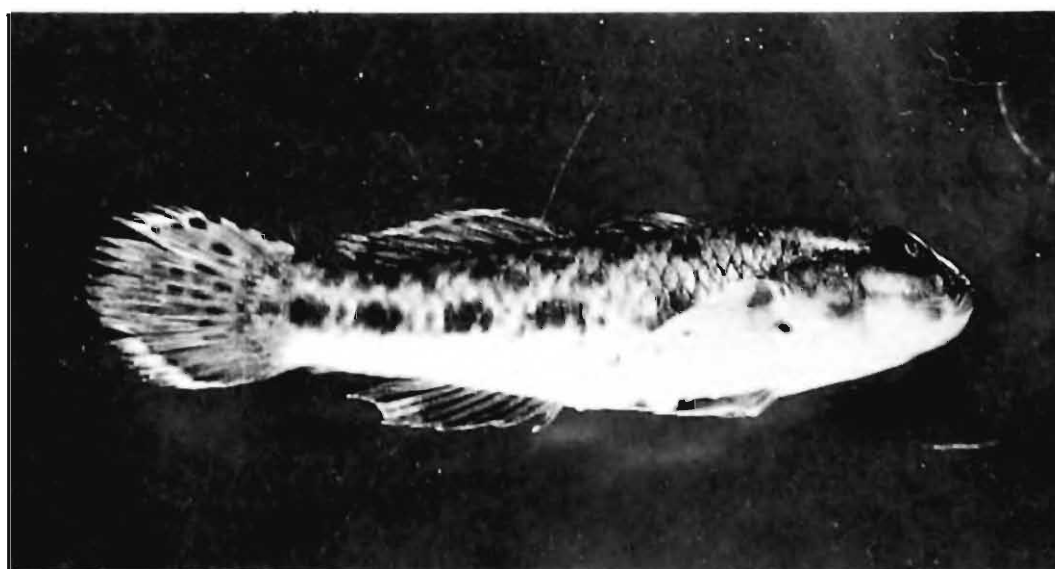


Fig. 221 *Acentrogobius bontii*

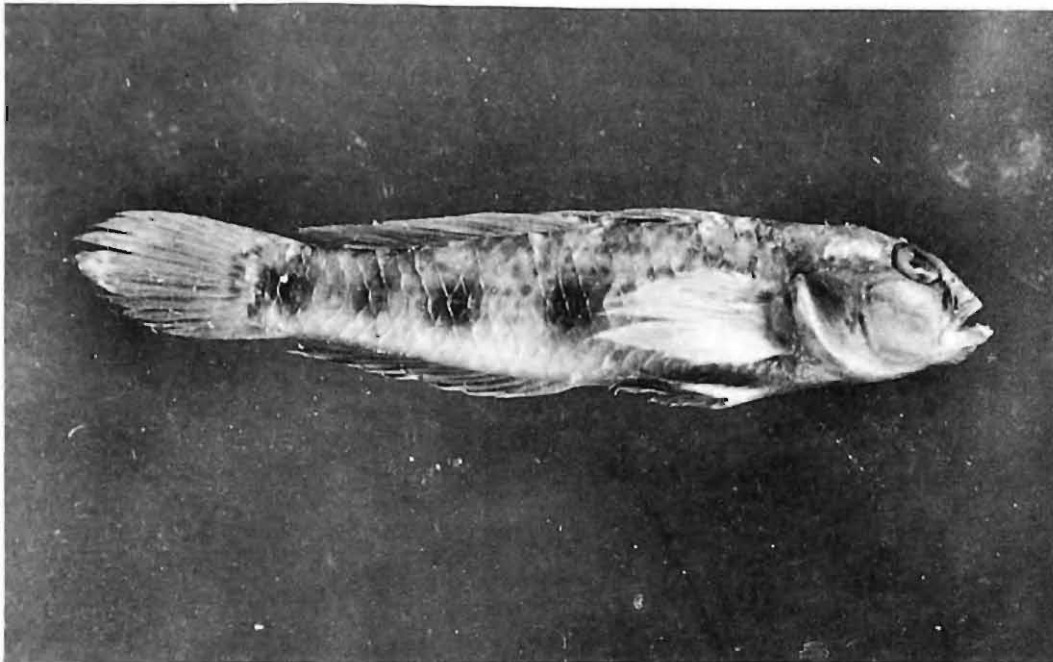


Fig. 222 *Acentrogobius viridipunctatus*



Fig. 223 *Bathygobius fuscus*

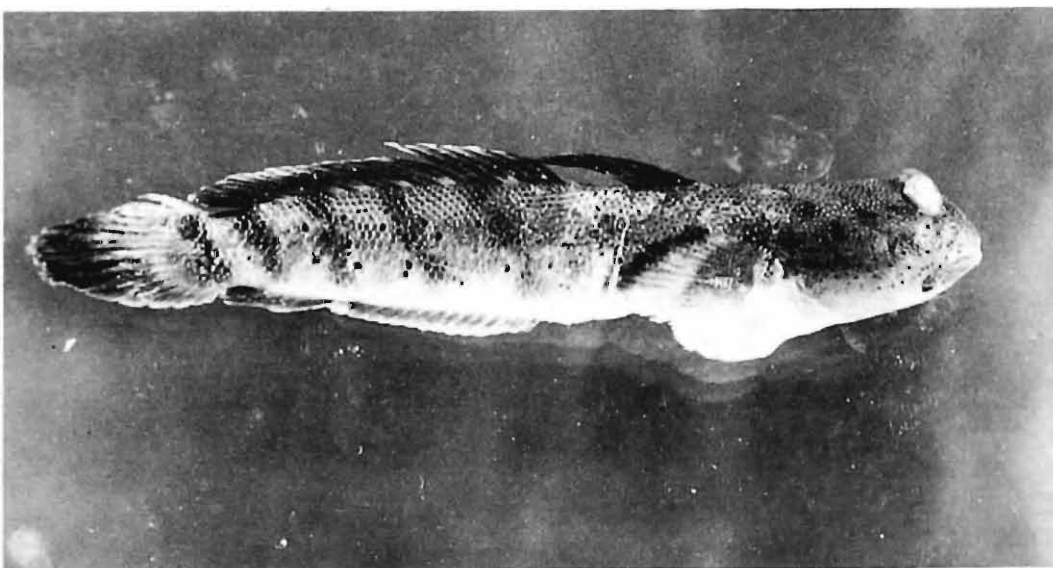


Fig. 224 *Boleophthalmus boddart*

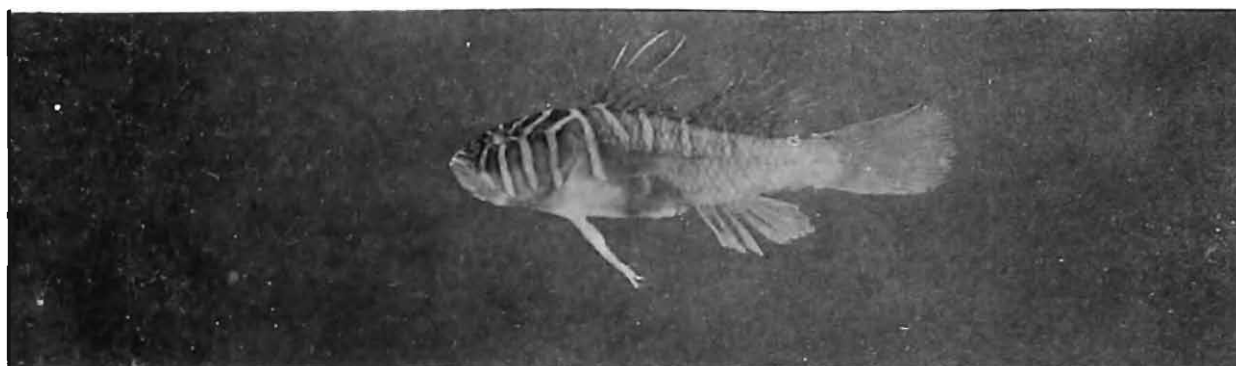


Fig. 225 *Priolepis semidoliatus*

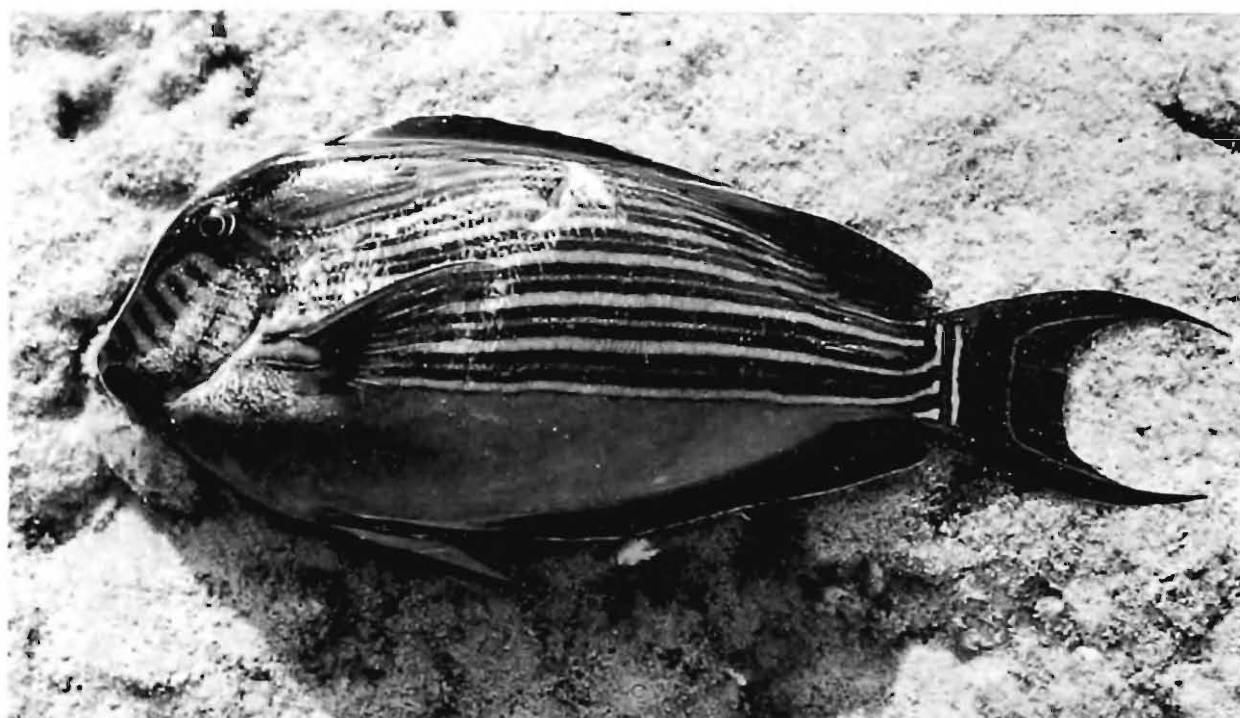


Fig. 226 *Acanthurus lineatus*

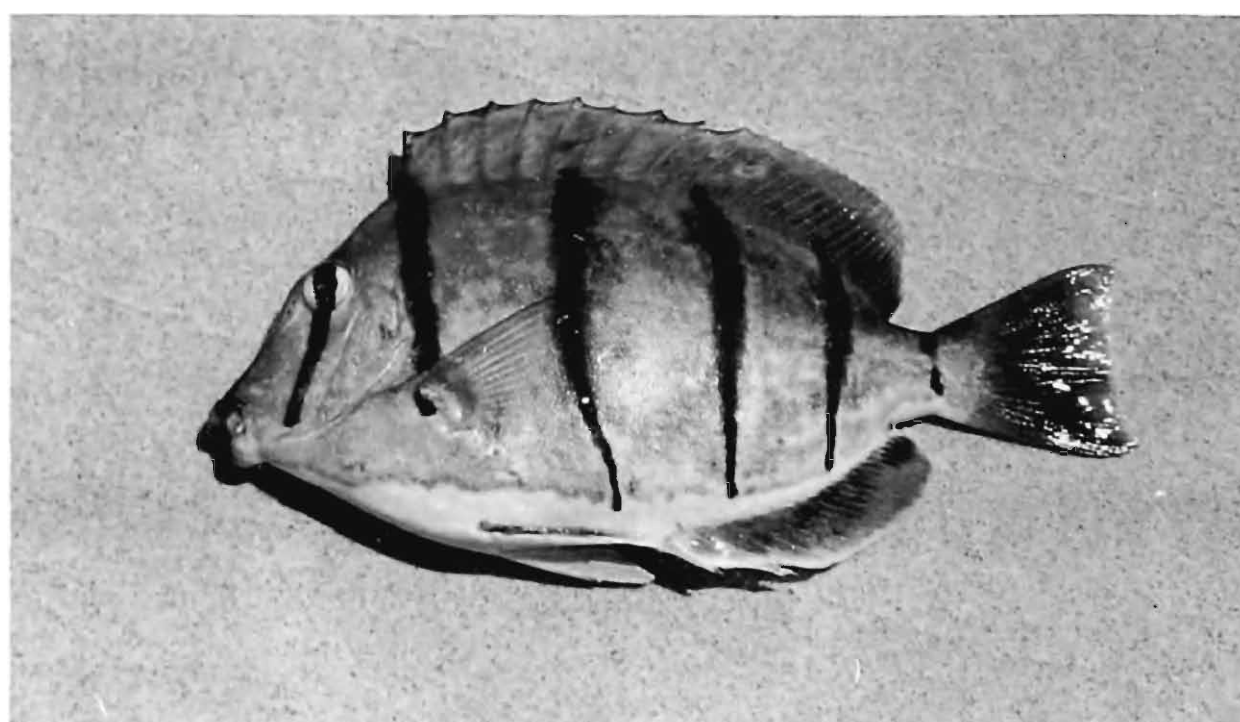


Fig. 227 *Acanthurus triostegus*

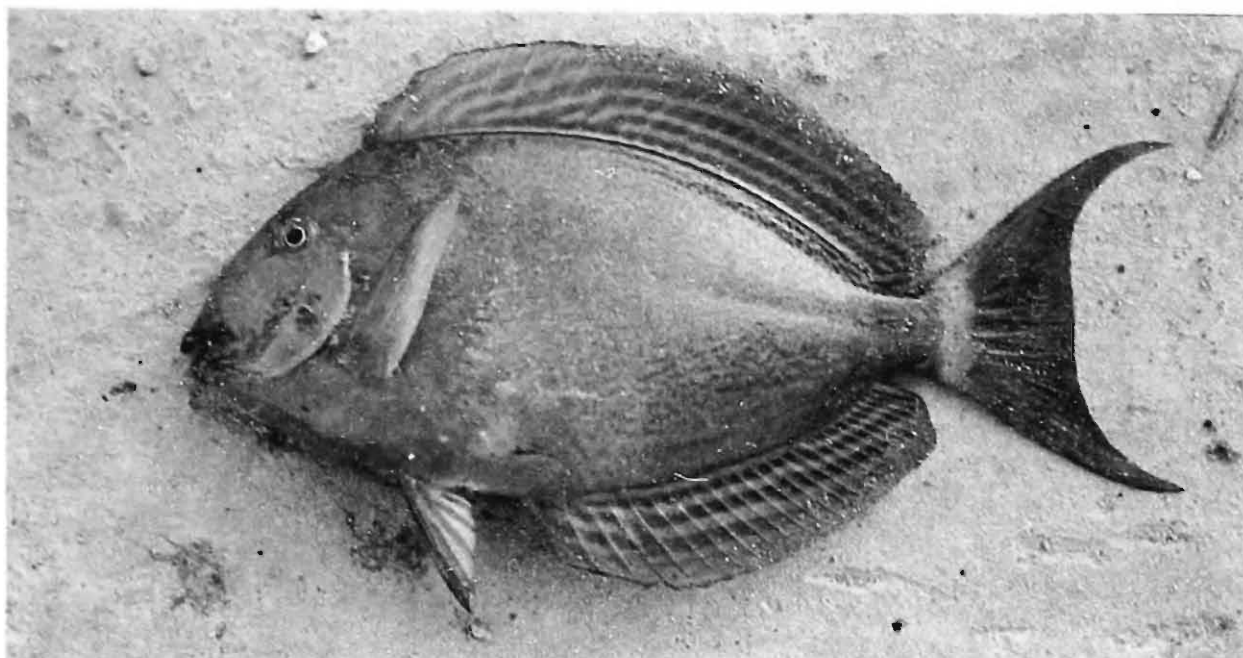


Fig. 228 *Acanthurus xanthopterus*

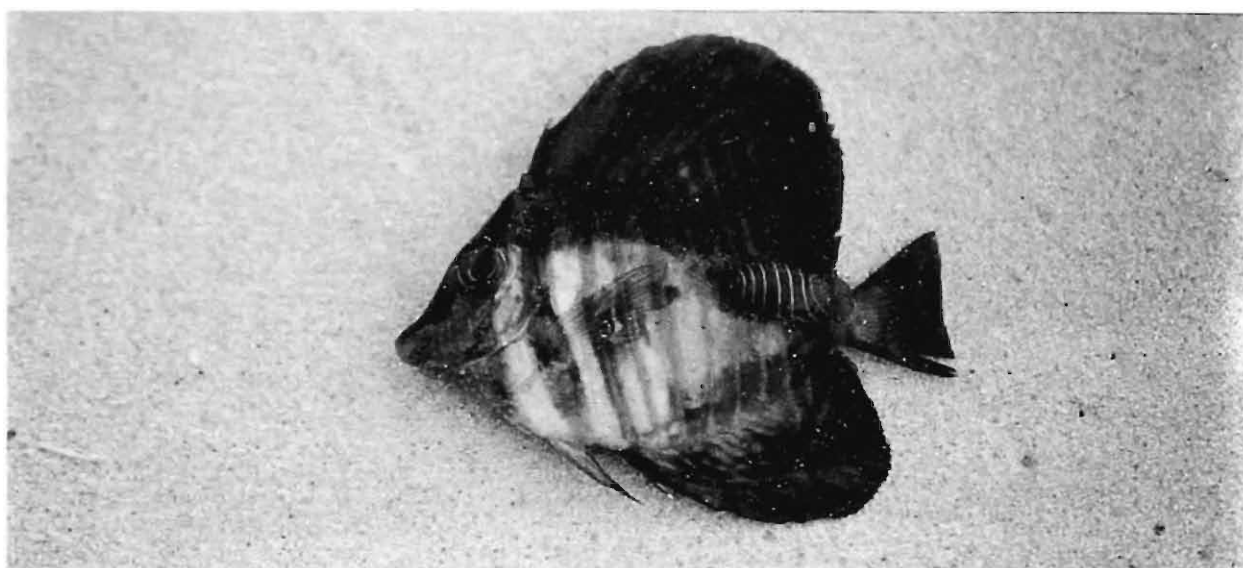


Fig. 229 *Zebrasoma veliferum*

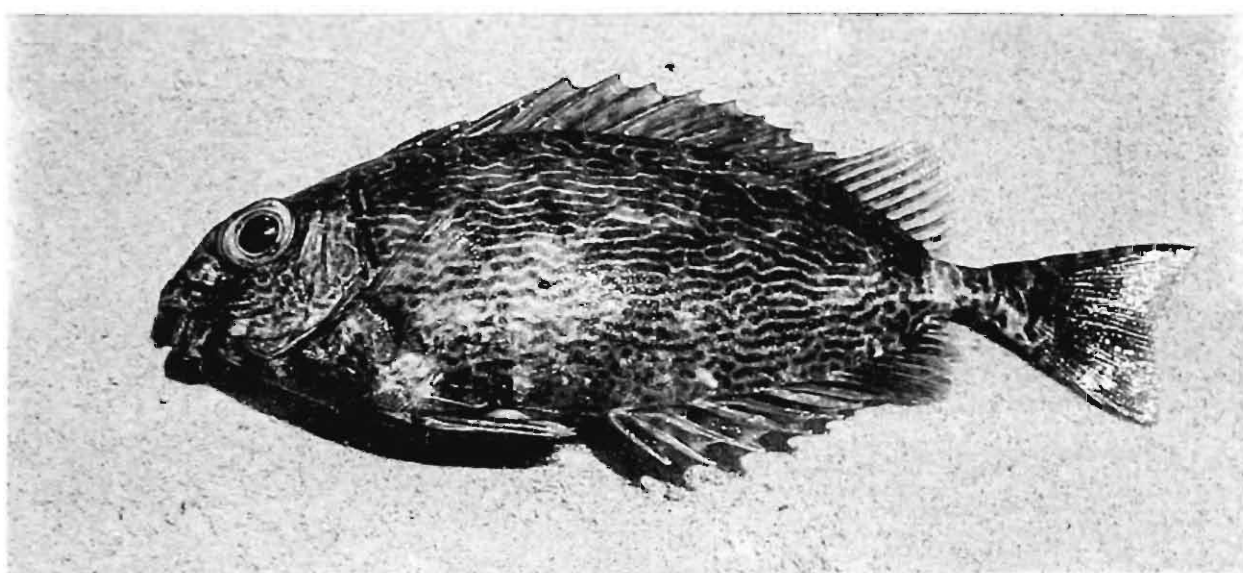


Fig. 230 *Siganus spinus*



Fig. 231 *Siganus stellatus*

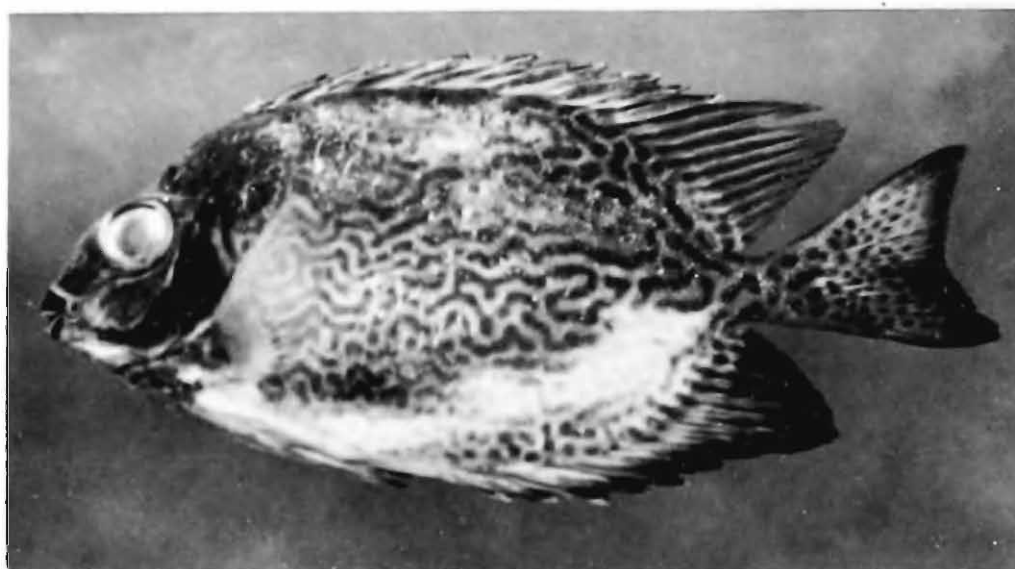


Fig. 232 *Siganus vermiculatus*



Fig. 233 *Siganus virgatus*

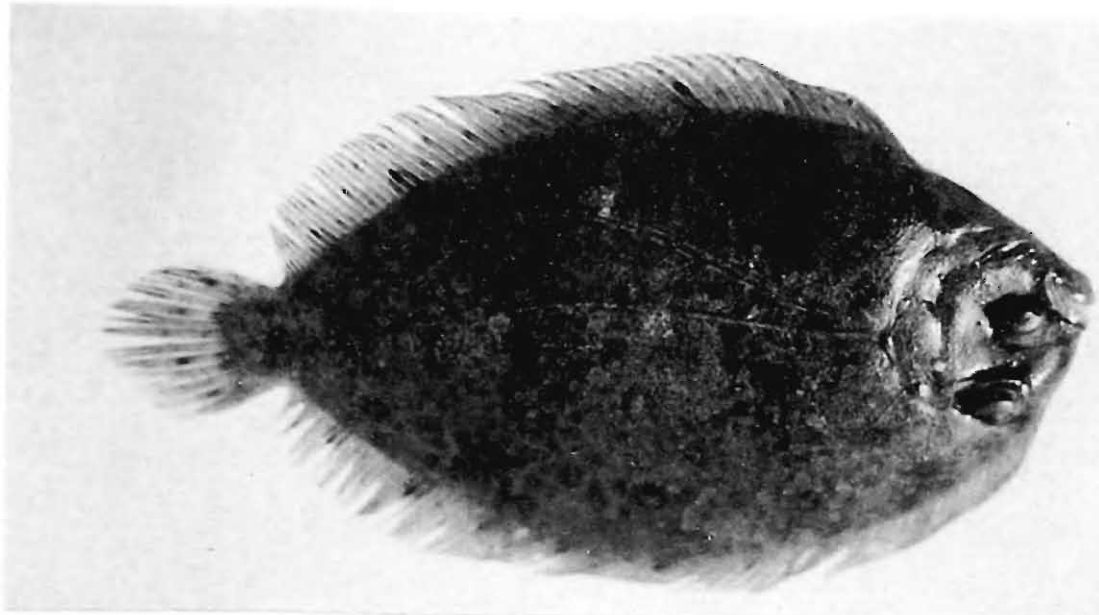


Fig. 234 *Bothus pantherinus*

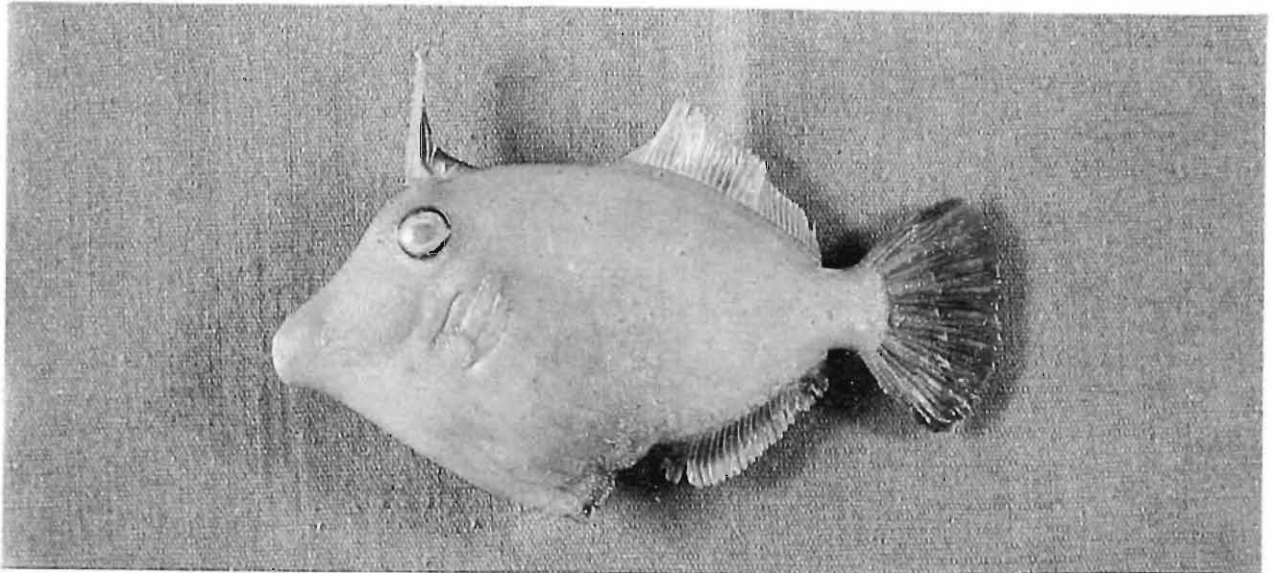


Fig. 235 *Cantherinus pardalis*

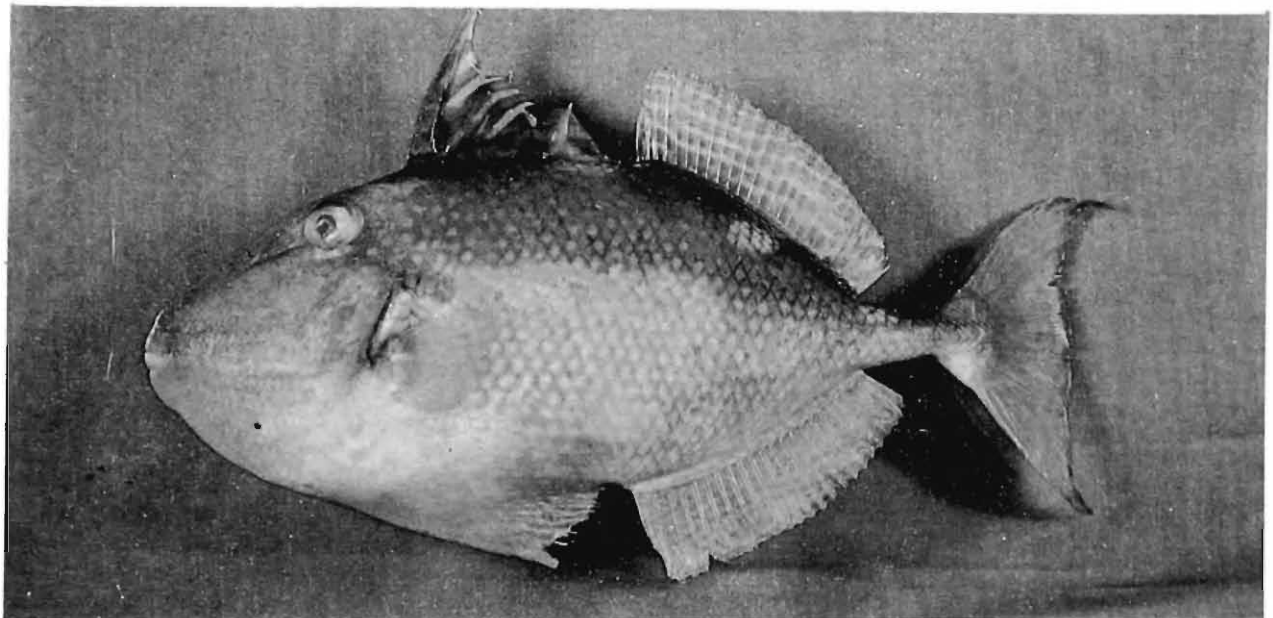


Fig. 236 *Abalistes stellatus*

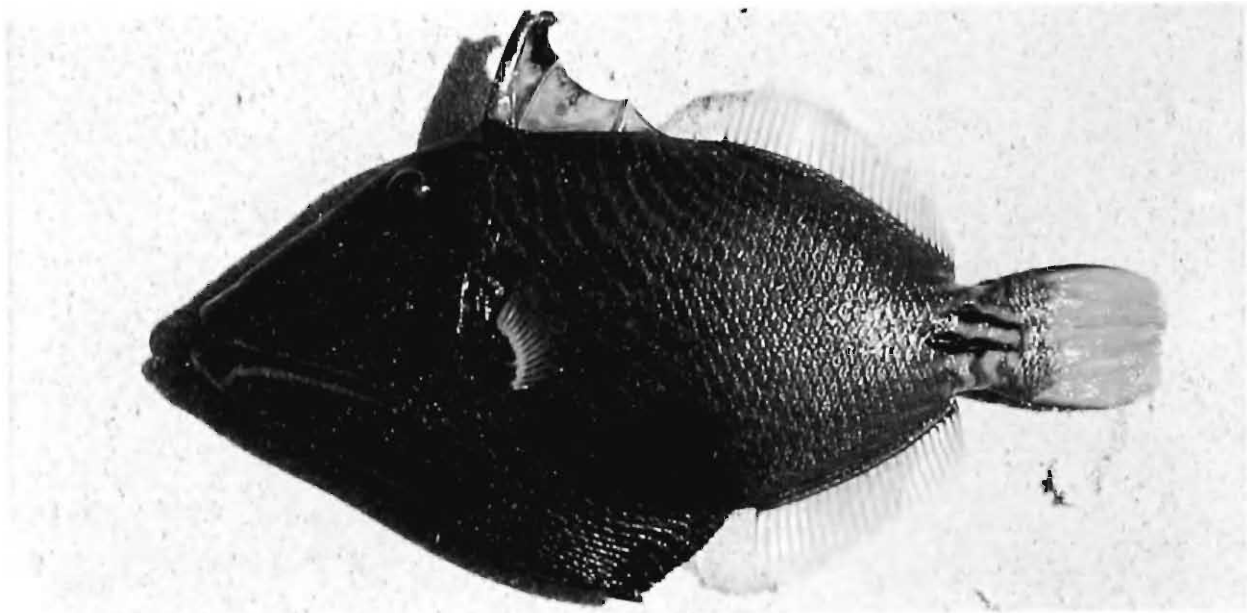


Fig. 237 *Balistapus undulatus*



Fig. 238 *Canthidermis maculatus*



Fig. 239 *Rhinecanthus aculeatus*

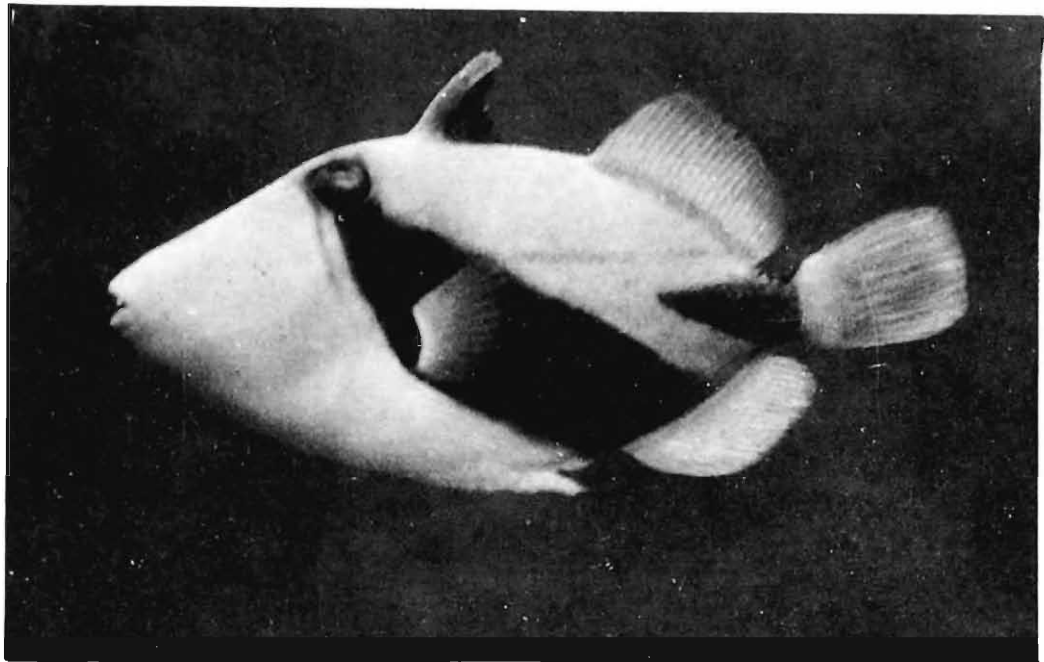


Fig. 240 *Rhinecanthus rectangulus*

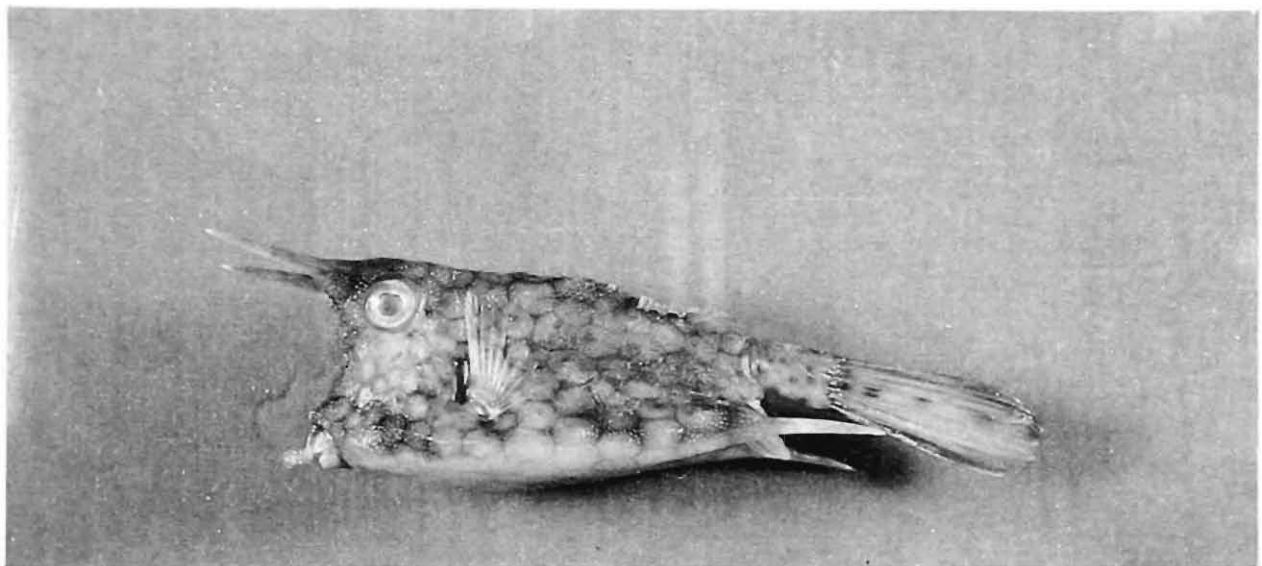


Fig. 241 *Lactoria cornuta* (Adult)

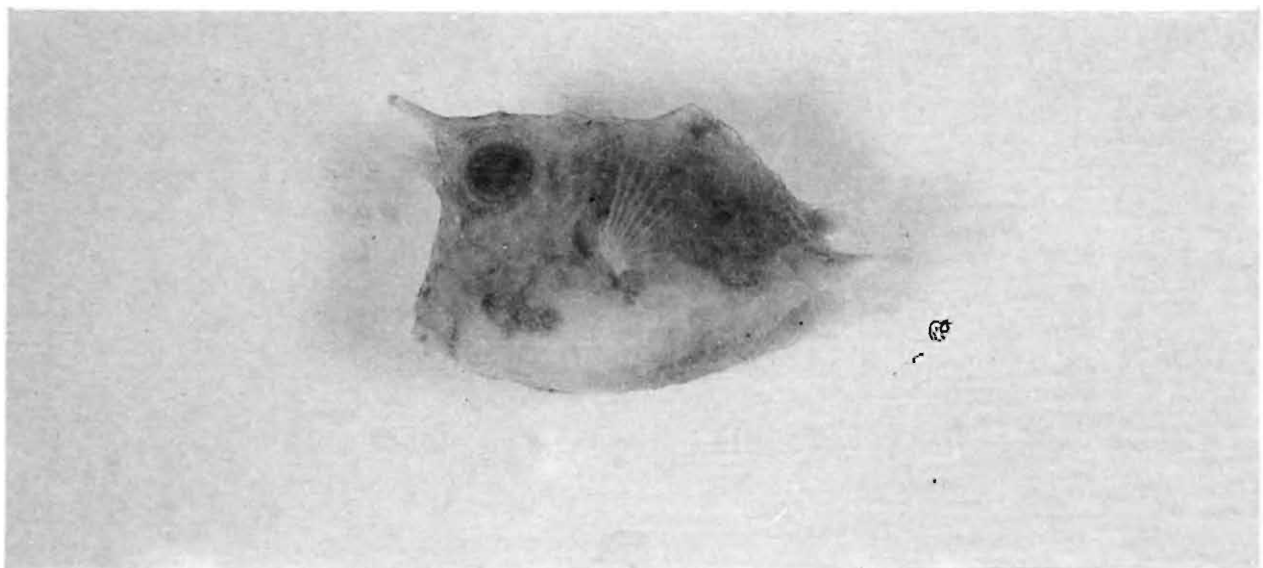


Fig. 242 *Lactoria cornuta* (Juvenile)

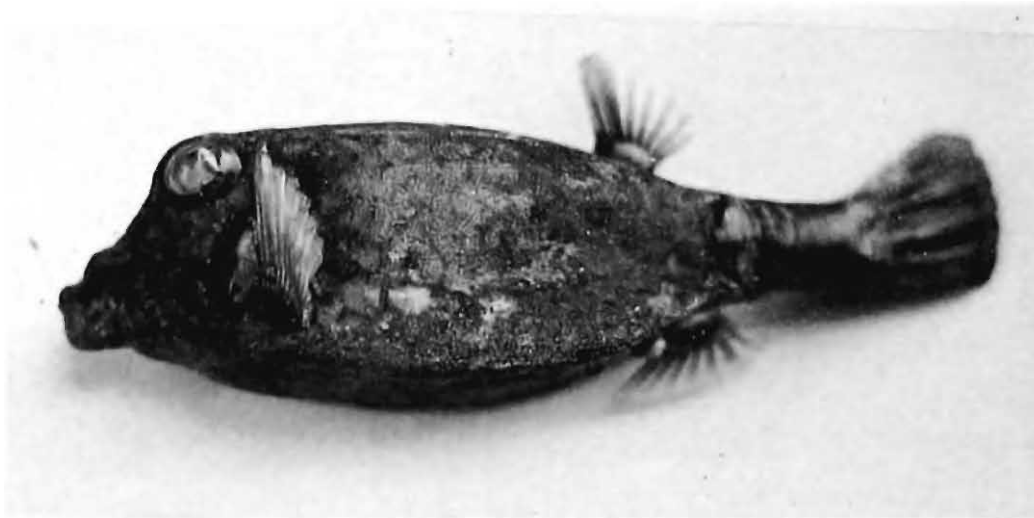


Fig. 243 *Ostracion cubicus*

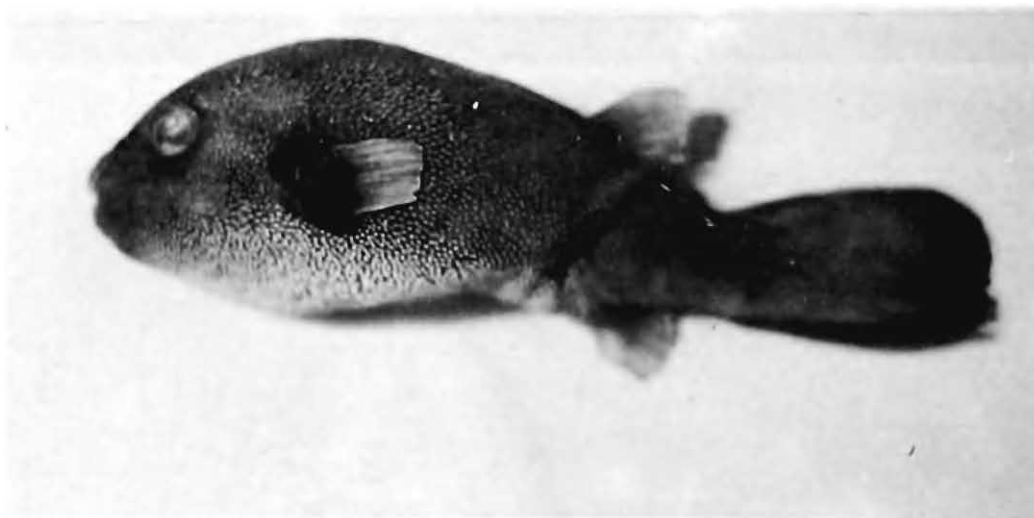


Fig. 244 *Arothron immaculatus*



Fig. 245 *Arothron mappa*



Fig. 246 *Arothron nigropunctatus*

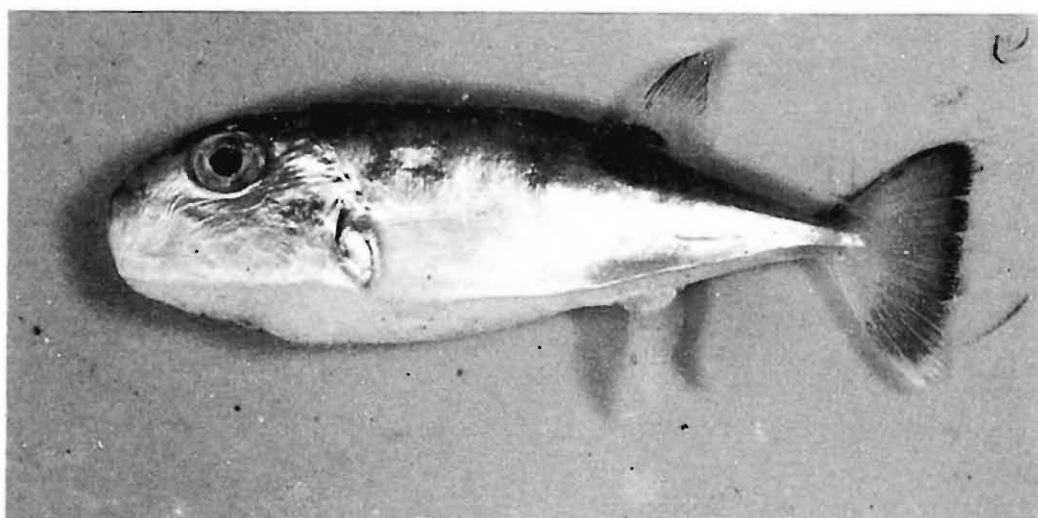


Fig. 247 *Lagocephalus guentheri*

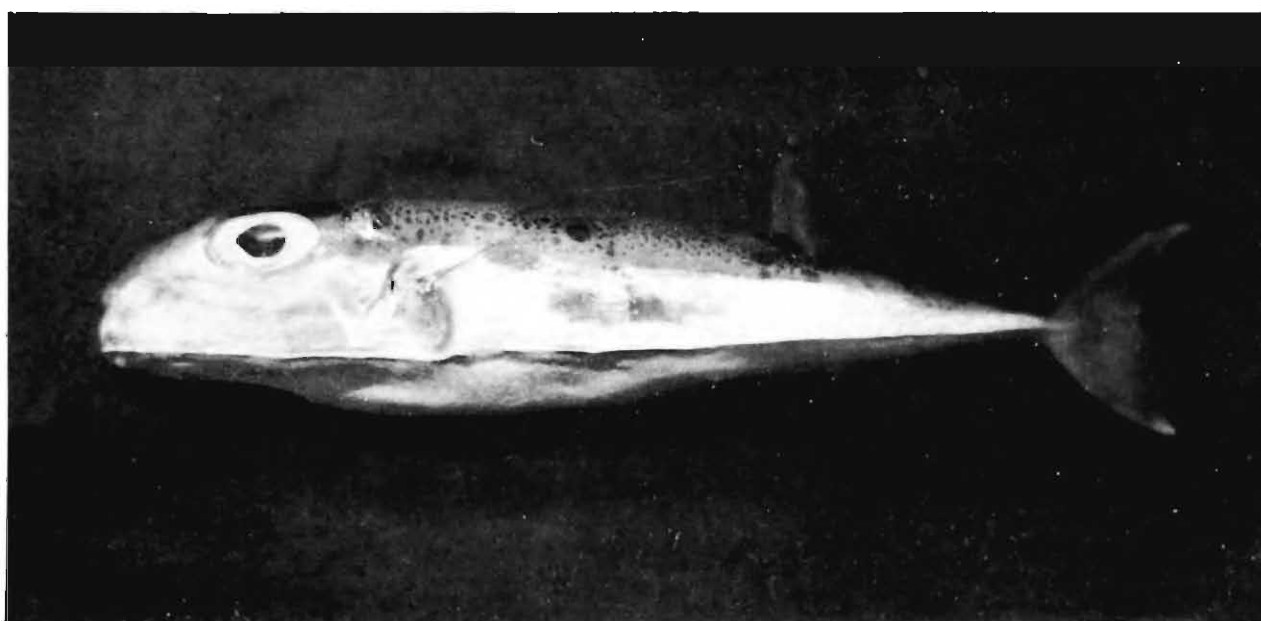


Fig. 248 *Lagocephalus scleratus*

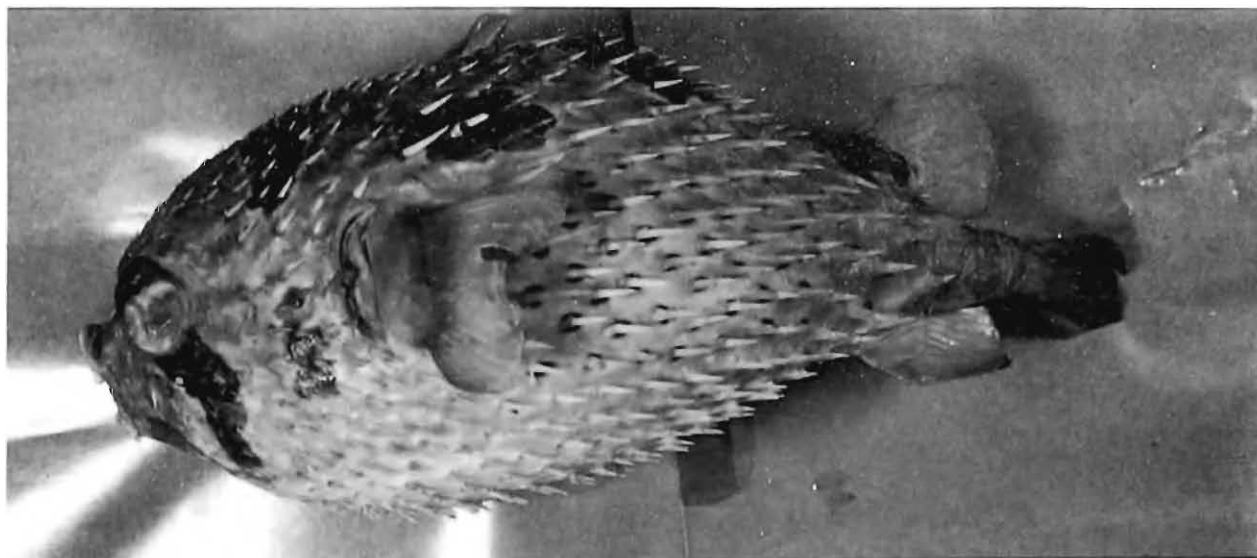


Fig. 249 *Diodon holocanthus*



Fig. 250 *Diodon hystrix*

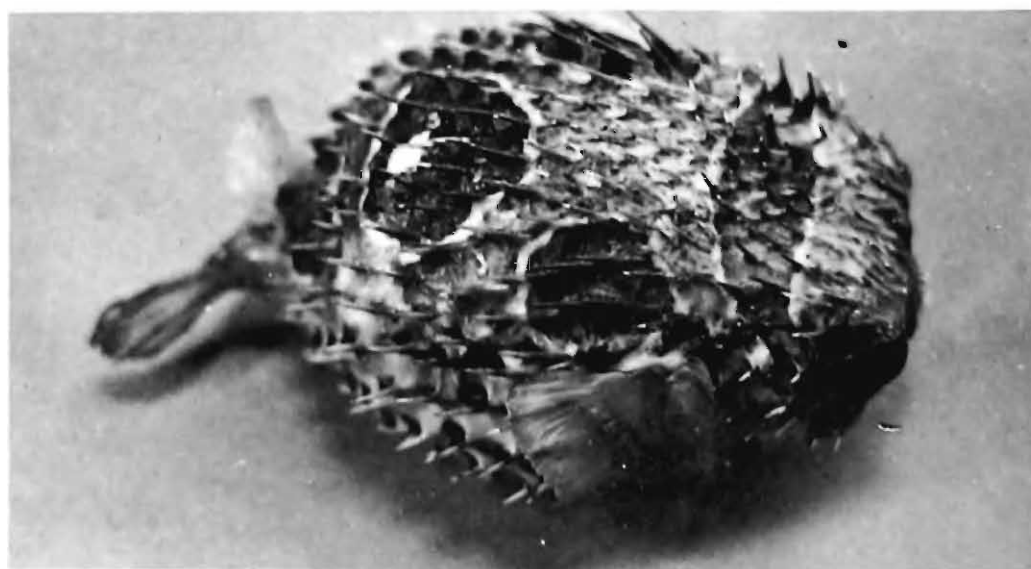


Fig. 251 *Diodon liturosus*