

# Fishes of Heron Island, Capricorn Group, Great Barrier Reef

by

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*Price: Eight Shillings*

University of Queensland Papers

Department of Zoology

Volume II

Number 2

THE UNIVERSITY OF QUEENSLAND PRESS

St. Lucia

26th April, 1963

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WHOLLY SET UP AND PRINTED IN AUSTRALIA BY  
WATSON, FERGUSON AND COMPANY, BRISBANE, QUEENSLAND  
1963

REGISTERED IN AUSTRALIA FOR TRANSMISSION BY POST AS  
A BOOK

**FISHES OF HERON ISLAND,  
CAPRICORN GROUP, GREAT BARRIER REEF**

**INTRODUCTION**

Heron Island, lat. 23°27'S, long. 151°57'E, lies in the Capricorn Group about 50 miles north-east of Gladstone.

This list records the species collected by the authors during 1956-57 from Heron I. It will enable unwieldy systematic records to be eliminated from additional papers to be presented independently by the authors. The fish were obtained by the dispersal of ichthyocides (rotenone, chloride of lime); trapping (arrowhead); handlining; spearing; and beach seining. Details of the use of these collecting methods will be published elsewhere. An arrowhead trap similar to that used in the present work was fished intermittently on Heron I. between December 1953 and January 1955 by Mr. E. M. Grant and Professor W. Stephenson. Their records were made available and often facilitated identifications. Eleven species recorded by them and not seen by the authors are included here.

While there has been accelerated interest in the biology of coral reefs in recent years, the fishes of the Great Barrier Reef have been largely neglected. This is the most comprehensive faunal list of fishes yet published for a comparable Australian habitat. Previous specific studies on the fish fauna of Great Barrier reefs have only been cursory: Whitley (1926) recorded 46 species from North-West Islet, Capricorn Group; 67 species from Michaelmas Cay (1927); and nearly 100 species from Low

Isles (1932a). Approximately 330 species are recorded herein, and another 70 have since been recognized. Further intensive collecting would reveal many additional species.

This tremendous number of species from so small an area reflects a situation which is essentially peculiar to tropical regions and which is especially apparent in the coral reef biome. The following records of numbers of marine to estuarine species of fishes recorded from areas ranging from cold temperate to tropical regions illustrate the trend of increasing numbers of species with decreasing latitude: Gulf of Maine, 217 species (Bigelow and Schroeder 1953); South Australia, 306 (Waite 1923); Peru, 246 (Hildebrand 1946); Ceylon, 780 (Munro 1955); Philippine Islands, 2,145 (Herre 1953); and the New Guinea region, 1,400 species (Munro 1958). The last two regions contain extensive coral reef areas.

The above all apply to regions of considerable size but the following species counts made on Eastern Pacific island coral reefs are cited for direct comparison with the number of species (400) recorded so far from Heron I.: Phoenix and Samoan Islands, over 361 species—only 64 families were studied (Schultz 1943); Gilbert Islands, 412 (Randall 1955); and Rariora Atoll, Tuamotu Archipelago, approximately 400 species (Harry 1953). The remarkable similarity in number of species is worthy of notice. A more extensive project on the fishes of the Marshall Islands has revealed about 600 species (Hiatt and Strasburg 1960, p. 66; Schultz *et al.* 1953).

The tropical phenomenon of faunal diversity is not peculiar to the fishes nor to the marine environment. Klopfer (1959) has attempted to interpret the situation in terms of environmental stability in geologic time. Klopfer and MacArthur (1960) dealt specifically with the birds, emphasizing the historio-geologic, niche size, and behavioural implications.

Also of interest is the nature of the complexity of ecological relationships within the tropical ecosystems as they are today; especially, how are the food and habitat niches of the species interrelated. Environmental diversity, which one might assume to be a prerequisite for faunal diversity, is certainly a feature of Heron I. and, indeed, the majority of coral reefs: areas solely of coral, and sparsely strewn with coral; open expanses of reef flat sand—shoal and deep; pools of the reef crest, of the reef flat, and the sandy shallows; areas largely of dead coral, largely of live coral; reef front coral subject to heavy wave action, to little wave action; reef flat subject to strong current sweep, to very little current sweep . . . .

But this is only one facet; the nature of the complex web of interrelationships cannot be understood until basic information about the species has been collected. Hiatt and Strasburg (1960) have made a major contribution, reporting on the food, feeding habits, and habitats of the coral reef fishes of the Marshall Islands. Similar papers on the Heron I. fishes are in preparation.

### **Plan of the Checklist**

Family and higher taxa classification is after Munro's (1955) modification of Berg (1940), certain changes being made at the authors' discretion. References cited include the original description and, where possible, readily available texts containing keys, descriptions, figures, and references. In those few cases where the original reference was not available it has been quoted from Herre (1953).

Specimens retained have been deposited in the Zoology Department, University of Queensland; but often, where no specimen was held, a Kodachrome transparency was lodged with the above-mentioned institution. Registration numbers may be found in the MSS. of Slack-Smith and Woodland housed in the Zoology Department Library.

The combined time spent on the island by the authors being in excess of eighteen months, considerable knowledge of the habits of the fishes was gained from underwater swimming, collecting, and angling. Field studies were largely concentrated

in areas adjacent to the cay (Plate I), and the more distant areas are the less perfectly known. Another deficiency is the lack of nocturnal underwater observations. Admitting these limitations, a note on the typical distribution and habits of species is included.

For further details of the topography and biology of the reef the reader is referred to Edean, Stephenson, and Kenny (1956), and Stephenson (1961); fuller accounts, referring specifically to this paper, will be published later.

Quoted next in sequence and in brackets is the code number of the person or persons responsible for identification of the species:

- (1) = Mr. E. M. Grant
- (2) = Mr. N. M. Haysom
- (3) = Mr. T. C. Marshall
- (4) = Mr. R. J. Slack-Smith
- (5) = Professor W. Stephenson
- (6) = Mr. G. P. Whitley
- (7) = Mr. D. J. Woodland.

### **New Records for Australia**

As far as can be ascertained the following have not previously been reported from Australian waters: *Ariosoma anago* (Schlegel); *Tylosurus crocodilus* (Le Sueur); *T. incisus*\* (Valenciennes); *Apogon cardinalis* (Seale); *A. nigrocinctus* (Smith and Radcliffe); *Neamia octospina* Smith and Radcliffe; *Selar crumenophthalmus* (Bloch); *Centropyge vroliki* (Bleeker); *Anampses pterophthalmus* Bleeker; *Gomphosus varius* Lacépède; *Scarus vermiculatus* (Fowler and Bean); *Enchelyurus caeruleopunctatus* Herre; *Gunellichthys pleurotaenia* Bleeker; *Acanthurus gahhm* (Forskål); *Zebrosoma rostratum* (Günther); and *Scoliodon walbeehmi* (Bleeker), but identification of this species is based on a late foetus.

### **Acknowledgements**

Special thanks are due to Mr. G. P. Whitley, Curator of Fishes, Australian Museum, Sydney; Messrs. T. C. Marshall, E. M. Grant and N. M. Haysom of the Fisheries Branch, Department of Harbours and Marine, Brisbane, for identification assistance; and Professor W. Stephenson of the Department of Zoology, University of Queensland, for advice and encouragement throughout. A large number of persons provided specimens or assisted in the field, especially Shirley M. Slack-Smith and Donald E. Rollason. We would also like to acknowledge assistance from the following libraries which made available many of the older and less accessible works: Public Library of Victoria, Melbourne; National Museum, Melbourne; Queensland Museum, Brisbane; and the Commonwealth National Library, Canberra.

Acknowledgement is made to the Commonwealth Research Grants Committee, the University of Queensland, and the Walter and Eliza Hall Trust, for financial assistance.

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\*Since this paper went to press Mees (1962) has had published, A preliminary revision of the Belonidae. *Zool. Verh., Leiden* 54, 1-96. It seems that *Tylosurus incisus* has been previously recorded, as *T. terebra* nov. sp. Whitley 1927, p. 8, Pl. 1, Fig. 6. Regarding other species listed by us (p. 25) Mees (p. 48) believes the assigned differences between *annulatus* (= *giganteus*) and *crocodilus* to be age differences, and finds *Belone maris-rubri maris-rubri* (Bloch and Schneider) to be the oldest available name. He tentatively unites (p. 26) *macleayanus*, the eastern Australian form, with *gavialoides* de Castelnau, the western Australian form.

## Class ELASMOBRANCHII

## Subclass SELACHII

## Order LAMNIFORMES. Sharks

## Suborder LAMNOIDEA

Family ORECTOLOBIDAE. Catsharks, wobbegongs, etc.

Genus *Brachaelurus* Ogilby, 1908a*Brachaelurus colcloughi* Ogilby

*Brachaelurus colcloughi* Ogilby 1908a, p. 4; Fowler 1941a, p. 70.  
*Heteroscyllium colcloughi* Whitley 1940, p. 86, Figs. 77, 78.

*Note:* Prior to securing of our specimen known from only two individuals: (a) holotype—457 mm total length; immature male from Mud Island, Moreton Bay; the specimen was accidentally destroyed; (b) a 525 mm male from an unknown Queensland locality; in the Queensland Museum—No. 1. 965. This shark (seen by us) was also identified by Ogilby.

Our specimen an immature male, 185 mm total length, taken on inner reef flat south-west of cay, 26th November, 1956. It displays juvenile coloration of six dusky cross bars on a grey ground colour.

This species may be readily distinguished from *B. waddi* (Bloch and Schneider), by the presence of a subsidiary flange on the nasal cirri, and a more inferior mouth. In *B. colcloughi* the distance from posterior edge of anal base to subcaudal base is twice in length of anal base, while in *B. waddi* it is thrice. (4, 7). Reg. No.: H97. (Plate II.)

Genus *Hemiscyllium* Smith, 1837*Hemiscyllium ocellatum* (Bonnaterre)

*Squalus ocellatus* Bonnaterre 1788, p. 8.  
*Hemiscyllium ocellatum* Whitley 1940, p. 73, Fig. 57; Fowler 1941a, p. 81.  
 Reef flat, lagoon. (7)

*Hemiscyllium punctatum* (Müller and Henle)

*Chiloscyllium punctatum* Müller and Henle 1838 (1838-41), p. 19, Pl. 3; Whitley 1940, p. 75, Figs. 28, 59, 78.  
*Hemiscyllium (Chiloscyllium) punctatum* Fowler 1941a, p. 85.  
 Lagoon, reef flat. (7)

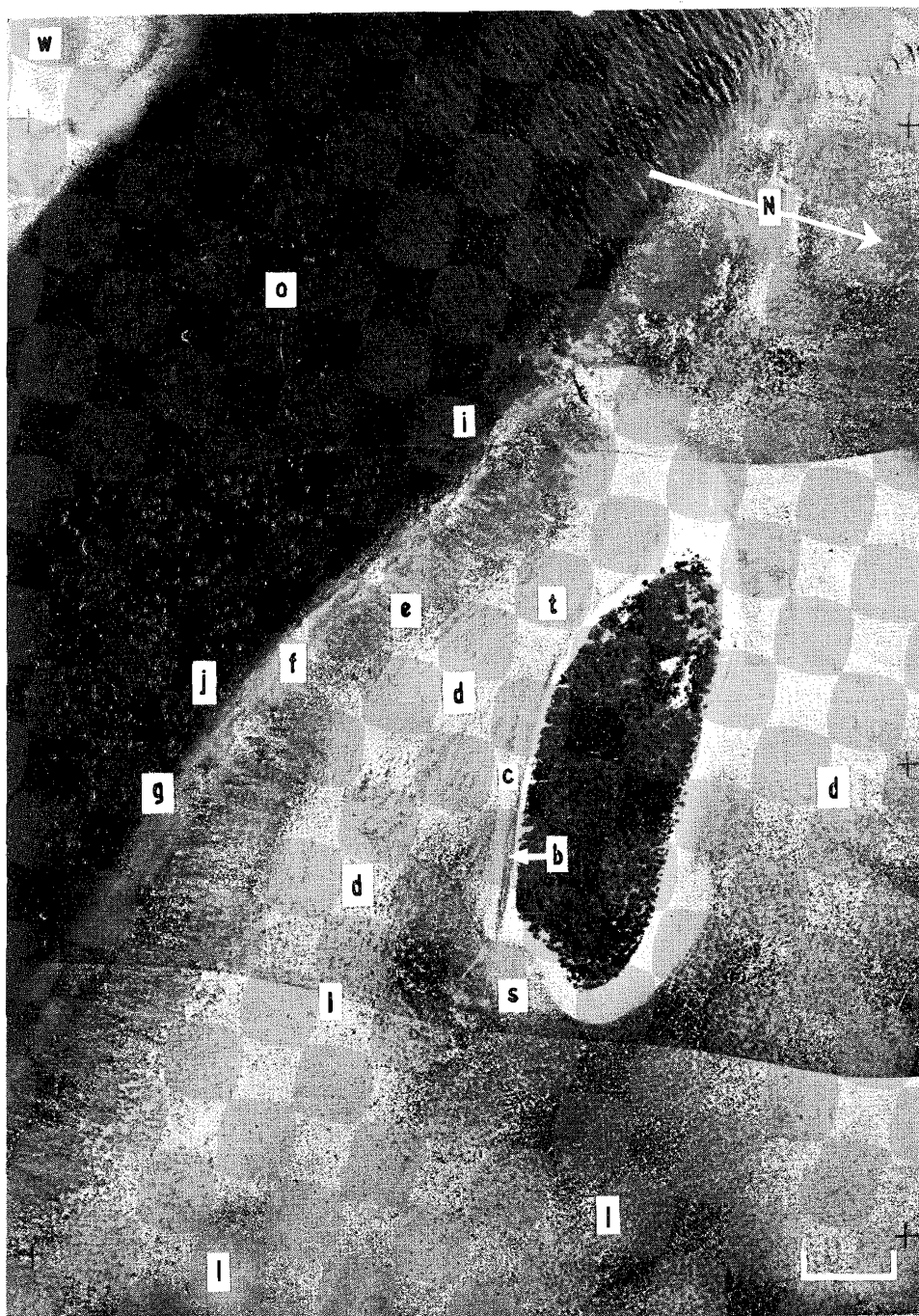
Genus *Orectolobus* Bonaparte, 1837*Orectolobus ornatus* (De Vis)

*Crossorhinus ornatus* De Vis 1883, p. 289.  
*Orectolobus ornatus* Whitley 1940, p. 80, Figs. 6, 67, 69; Fowler 1941a, p. 93.  
 Lagoon, reef flat. (4, 7)

**Explanation of Plate One**

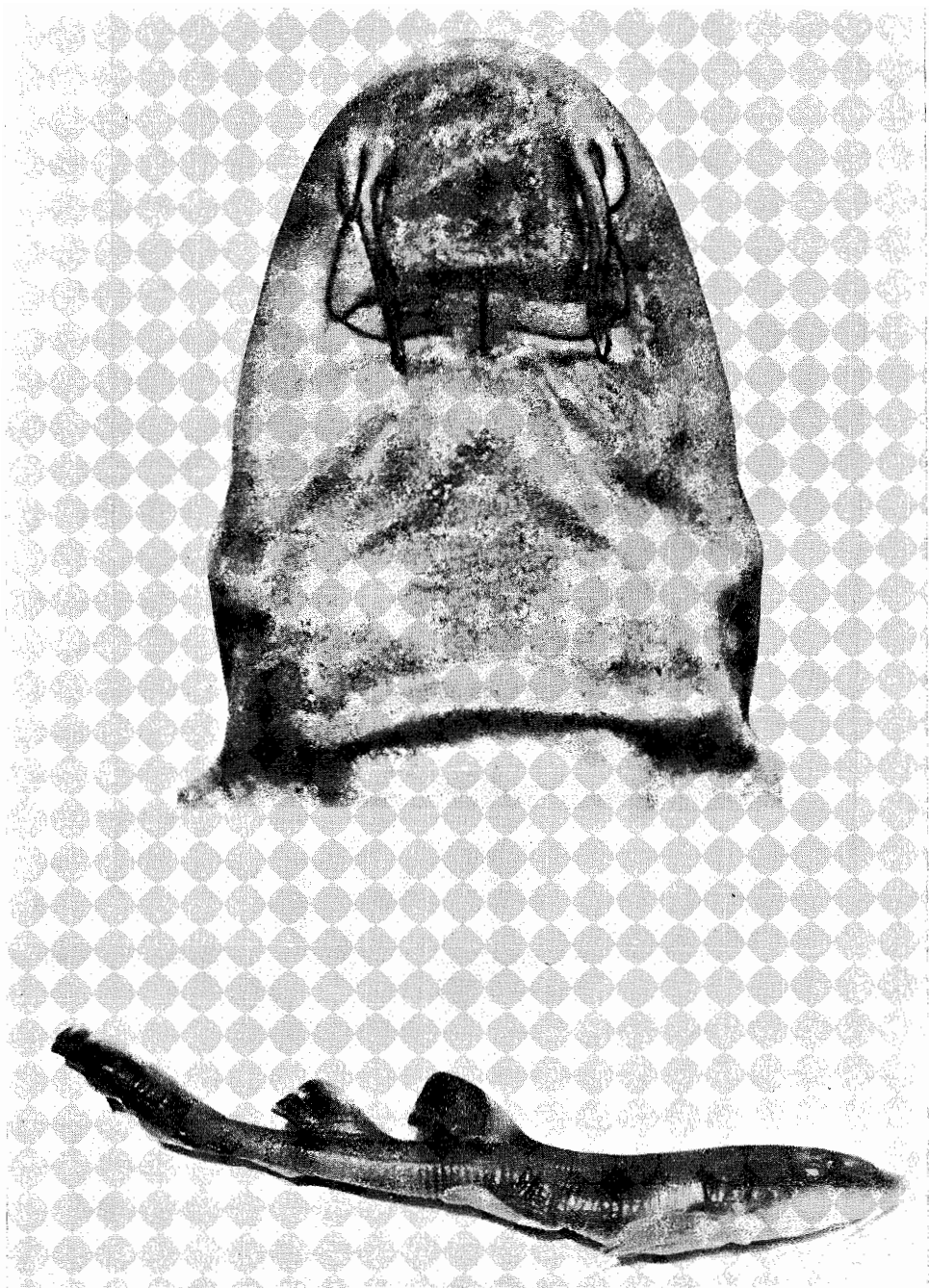
- (b) beachrock strip
- (c) inshore channel (gutter)
- (d) inner reef flat
- (e) outer reef flat
- (f) reef crest
- (g) reef edge: the actively growing edge of the reef (the "reef front" is the vertical, slightly concave face falling from the reef edge)
- (i) fringing platform
- (j) seaward slope
- (l) lagoon
- (o) open water; here, the deep channel between Heron and Wistari reefs
- (s) Shark Bay
- (t) site of the arrowhead fish trap
- (w) Wistari reef

The dark speckling on the reef flat is coral; the paler substrate is coral sand. A sand spit almost devoid of coral may be seen running from the upper extremity of the cay to the Wreck lying near the reef crest. The reef extends about six miles in a south-easterly direction.



### Plate I

Aerial mosaic of the north-western extremity of Heron I. showing the sand cay and its environs.  
(Scale line = 500 ft).

**Plate II**

*Brachaelurus colcloughi* Ogilby; 185 mm male; Heron I.

(Upper) Mouthparts: the subsidiary flanges may be seen arising anteriorly and medially from the nasal cirri.

(Lower) Entire (the anal fin is bent towards the viewer).



## Suborder SCYLORHINOIDEA

Family CARCHARHINIDAE. True sharks, whalers, etc.

Genus *Scoliodon* Müller and Henle, 1837*Scoliodon walbeehmi* (Bleeker)*Carcharias (Scoliodon) Walbeehmi* Bleeker 1856b, p. 348 (353).*Scoliodon walbeehmii* Fowler 1941a, p. 134.*Scoliodon walbeehmi* Smith 1953, p. 43, Fig. 12.

*Note:* On 22nd December, 1956, a 5ft shark was caught by members of the Underwater Research Group of Queensland in open water to the south-west side of Heron reef. A 302 mm female foetus taken from its uterus was presented to the authors. Owing to the nature of the specimen some doubts may be cast upon the validity of the identification, though the foetus was a very late one. If identification is correct this is a new record for Australia. (7). Reg. No.: L81.

Genus *Negaprion* Whitley, 1940*Negaprion acutidens* (Rüppell)*Carcharias acutidens* Rüppell 1838, p. 65, Pl. 18, Fig. 3.*Aprionodon acutidens queenslandicus* Whitley 1939, p. 233, Fig. 6.*Negaprion queenslandicus* Whitley 1940, p. 111, Figs. 88, 113.*Aprionodon acutidens* Fowler 1941a, p. 141.

Open waters. (1)

Genus *Carcharhinus* Blainville, 1816*Carcharhinus ahenea* (Stead)*Eulamia ahenea* Stead 1938, p. 98; Fowler 1941a, p. 153.*Galeolamna ahenea* Whitley 1940, p. 100, Figs. 93, 94.

Open waters. (7)

*Carcharhinus macrurus* (Ramsay and Ogilby)*Carcharias macrurus* Ramsay and Ogilby 1887, p. 163; Ramsay and Ogilby 1888, p. 1024.*Galeolamna macrurus* Whitley 1940, p. 97, Figs. 88, 91, 92.*Eulamia macrura* Fowler 1941a, p. 152.

Open waters. (7)

*Carcharhinus melanopterus* (Quoy and Gaimard)*Carcharias melanopterus* Quoy and Gaimard 1824, p. 194, Pl. 43, Figs. 1, 2.*Eulamia melanoptera* Fowler 1941a, p. 158.*Carcharhinus melanopterus* (Schultz) Schuitz *et al.* 1953, p. 13, Pl. 3, A.

Ubiquitous. (4, 7)

Genus *Hemigaleus* Bleeker, 1852d*Hemigaleus microstoma* Bleeker*Hemigaleus microstoma* Bleeker 1852d, p. 46, Pl. 2, Fig. 10; Fowler 1941a, p. 184.*Negogaleus microstoma* Whitley 1940, p. 108, Figs. 88, 108.

Open waters. (7)

Genus *Galeocerdo* Müller and Henle, 1837*Galeocerdo cuvier* (Le Sueur)*Squalus cuvier* Le Sueur 1822, p. 351.*Galeocerdo cuvier* Fowler 1941a, p. 186; Smith 1953, p. 44, Pl. 1, Fig. 14.

Open waters. (1)

## Family TRIAKIDAE

Genus *Triaenodon* Müller and Henle, 1837*Triaenodon apicalis* Whitley*Triaenodon apicalis* Whitley 1939, p. 236, Fig. 9.

Open waters, coming on to reef. (7)

## Family SPHYRNIDAE. Hammerhead sharks

Genus *Sphyrna* Rafinesque, 1810b*Sphyrna* sp.

*Note:* A hammerhead shark about 9 ft long was hooked on a handline in open water to the south-west side of Heron reef during May 1957, but not landed.

## Group Batoidea

## Order RHINOBATIFORMES

Family RHINOBATIDAE. Shovelnose rays

Genus *Rhinobatos* Link, 1790*Rhinobatos typus* Bennett, E. T.*Rhinobatos typus* Bennett 1830, p. 694.*Rhinobatos armatus* Ogilby 1916a, pp. 85, 95, Fig. 1.*Rhinobatos typus* Fowler 1941a, p. 319.

Lagoon, coming on to reef flat at high tides. (7)

## Order MYLIOBATIFORMES

Family DASYATIDAE. Stingrays

Genus *Taeniura* Müller and Henle, 1837*Taeniura lymna* (Forskål)*Raja lymna* Forskål 1775, p. 17.*Taeniura lymna halgani* Whitley 1940, p. 210, Figs. 226, 237.*Taeniura lymna* Fowler 1941a, p. 398.*Taeniura lymna* (Schultz) Schultz *et al.* 1953, p. 20 (in key only).

Sandy areas of lagoon and reef flat. (7)

Genus *Dasyatis* Rafinesque, 1810a*Dasyatis granulatus* (Macleay)*Trygon granulata* Macleay 1883, p. 598.*Himantura granulata* Whitley 1940, p. 213, Fig. 242.*Dasyatis granulatus* Fowler 1941a, p. 437.

Lagoon and open waters, coming on to reef flat at high tides. (7)

*Dasyatis kuhli* (Müller and Henle)*Trygon kuhlii* Müller and Henle 1841 (1838-41), p. 164, Pl. 50.*Neotrygon kuhlii* Whitley 1940, p. 208, Figs. 226, 235.*Dasyatis kuhlii* Fowler 1941a, p. 424.

Sandy areas of lagoon and reef flat. (7)

Family MYLIOBATIDAE. Eagle rays

Genus *Aetobatus* Blainville, 1816*Aetobatus narinari* (Euphrasen)*Raja narinari* Euphrasen 1790, p. 217, Pl. 10.*Aetobatus narinari* Fowler 1941a, p. 471; Munro 1955, p. 15, Pl. 3, Fig. 43.

Lagoon and open waters, coming on to reef at high tides. (7)

## Order TORPEDINIFORMES

Family TORPEDINIDAE. Electric rays

Genus *Hypnos* Duméril, 1852*Hypnos subnigrum* Duméril*Hypnos subnigrum* Duméril 1852, p. 279, Pl. 12; Fowler 1941a, p. 340.*Hypnarce monopterygium* Whitley 1940, p. 165, Fig. 187.

Inner reef flat. (7)

Class TELEOSTOMI  
Subclass ACTINOPTERYGII  
Order CLUPEIFORMES

Suborder CLUPEOIDEA  
Family DUSSUMIERIDAE. Sprats  
Genus *Spratelloides* Bleeker, 1852c

*Spratelloides delicatulus* (Bennett)

*Clupea delicatula* Bennett 1831, p. 168.

*Spratelloides delicatulus* Weber and de Beaufort 1913, p. 20.

*Stolephorus delicatulus* Smith 1953, p. 89, Fig. 107.

Surface swimmers of the open water, entering reef flat at high tide. Moderately common. (4)

Suborder CHANOIDEA  
Family CHANIDAE. Milkfishes  
Genus *Chanos* Lacépède, 1803

*Chanos chanos* (Forskål)

*Mugil chanos* Forskål 1775, p. 74.

*Chanos chanos* Weber and de Beaufort 1913, p. 15, Fig. 8; Fowler 1941a, p. 537.

Fish trap. (1, 5)

Order SCOPELIFORMES  
Family SYNODONTIDAE. Lizard fishes

Genus *Saurida* (Valenciennes) Cuvier and Valenciennes, 1850

*Saurida gracilis* (Quoy and Gaimard)

*Saurus gracilis* Quoy and Gaimard 1824, p. 224.

*Saurida gracilis* Weber and de Beaufort 1913, p. 143, Fig. 53.

Moderately common in reef crest pools. (4)

Genus *Synodus* Scopoli, 1777

*Synodus variegatus* (Lacépède)

*Salmo variegatus* Lacépède 1803, p. 157, Pl. 3, Fig. 3.

*Saurus variegatus* Weber and de Beaufort 1913, p. 147, Fig. 54.

*Synodus variegatus* Smith 1953, p. 112, Pl. 6, Fig. 174.

Moderately common on all sandy areas. (4)

Order ANGUILLIFORMES

Suborder ANGUILLOIDEA  
Family CONGRIDAE. Conger eels

Genus *Ariosoma* Swainson, 1838

*Ariosoma anago* (Schlegel)

*Conger anago* Schlegel 1846, p. 259, Pl. 113, Fig. 1.

*Congrellus anago* Ogilby 1898, p. 290; Weber and de Beaufort 1916, p. 262, Fig. 109.

One taken on reef edge near the Wreck. New record for Australia. (4). Reg. No.: H401.

Genus *Conger* (Cuvier) Oken, 1817

*Conger cinereus* Rüppell

*Conger cinereus* Rüppell 1828, p. 115, Pl. 29, Fig. 1; Weber and de Beaufort 1916, p. 258, Figs. 107, 108; Schultz 1943, p. 44, Fig. 5b.

One found on reef flat under coral. (4)

## Family ECHELIDAE. Worm eels

Genus *Muraenichthys* Bleeker, 1853f*Muraenichthys gymnotus* Bleeker

*Muraenichthys gymnotus* Bleeker 1857a, p. 90; Weber and de Beaufort 1916, p. 277.

Burrowing in sand at Shark Bay. Rare. (4)

*Muraenichthys macropterus* Bleeker

*Muraenichthys macropterus* Bleeker 1857a, p. 91; Weber and de Beaufort 1916, p. 275; Schultz 1943, p. 51, Fig. 5f.

Common in sand on reef flat. (4)

## Family MURAENIDAE. Moray eels

Genus *Echidna* J. R. Forster, 1777*Echidna nebulosa* (Ahl)

*Muraena nebulosa* (Ahl) Thunberg 1789, p. 7, Plate.

*Echidna nebulosa* Weber and de Beaufort 1916, p. 348, Fig. 170.

One found on the south-western reef crest. (4)

Genus *Gymnothorax* Bloch, 1795*Gymnothorax cribroris* Whitley

*Gymnothorax cribroris* Whitley 1932b, p. 330, Pl. 39, Fig. 2.

Occasionally amongst coral on inner reef flat. (4)

*Gymnothorax favagineus* Bloch and Schneider

*Gymnothorax favagineus* Bloch and Schneider 1801, p. 525, Pl. 105; Munro 1955, p. 63, Pl. 11, Fig. 175.

*Muraena* (*Gymnothorax*) *favaginea* Weber and de Beaufort 1916, p. 378, Fig. 187.

Common amongst coral on whole reef flat. (4, 7)

*Gymnothorax flavimarginatus* (Rüppell)

*Muraena flavimarginata* Rüppell 1828, p. 119, Pl. 30, Fig. 3.

*Muraena* (*Gymnothorax*) *flavimarginata* Weber and de Beaufort 1916, p. 374 (*partim*).

*Gymnothorax flavimarginata* Schultz 1943, pp. 37, 41.

Found only in pools on south-western reef crest. Rare. (4)

*Gymnothorax meleagris* (Shaw)

*Muraena meleagris* Shaw and Nodder 1795 (1795-96), Pl. 220, text.

*Gymnothorax chalazius* Waite 1904, p. 145, Pl. 17, Fig. 2.

*Muraena* (*Gymnothorax*) *meleagris* Weber and de Beaufort 1916, p. 367 (*partim*).

Common amongst coral in all outer reef areas. Varieties *meleagris* and *chalazius* were both taken. (4)

*Gymnothorax pictus* (Ahl)

*Muraena picta* (Ahl) Thunberg 1789, p. 8, Plate.

*Muraena* (*Gymnothorax*) *picta* Weber and de Beaufort 1916, p. 363, Figs. 175, 180.

One on the reef crest at low tide. (4)

*Gymnothorax punctatus* Bloch and Schneider

*Gymnothorax punctatus* Bloch and Schneider 1801, p. 526.

*Muraena* (*Gymnothorax*) *tile* Weber and de Beaufort 1916, p. 370, Fig. 176.

*Gymnothorax punctatus* Munro 1955, p. 63, Pl. 11, Fig. 176.

Two from reef crest pools. (4)

*Gymnothorax thrysoideus* (Richardson)

*Muraena thrysoidea* Richardson 1844, p. 111 (not Pl. 49, Fig. 1); Schultz 1943, p. 44, Fig. 4i.

*Muraena* (*Gymnothorax*) *thrysoidea* Weber and de Beaufort 1916, p. 365.

In reef crest pools on south-western reef. Not common. (4)

*Gymnothorax undulatus* (Lacépède)

- Muraenophis undulata* Lacépède 1803, pp. 629, 644, Pl. 64, Fig. 2.  
*Muraena (Gymnothorax) undulata* Weber and de Beaufort 1916, p. 376, Fig. 186.  
*Gymnothorax undulatus* McCulloch 1927, p. 24, Pl. 8, Fig. 81b.  
*Gymnothorax undulata* Schultz 1943, p. 43.

Amongst coral in all regions of the reef. The dominant moray. (4)

## Family OPHICHTHYIDAE. Snake eels

Genus *Leiuranus* Bleeker, 1853f

*Leiuranus semicinctus* (Bennett)

- Ophisurus semicinctus* Lay and Bennett 1839, p. 66, Pl. 20, Fig. 4.  
*Leiuranus semicinctus* Weber and de Beaufort 1916, p. 294, Fig. 137; Schultz 1943, p. 14, Fig. 2b.

Moderately common in sand on the reef flat. (4)

## Order BELONIFORMES

## Suborder SCOMBERESOCOIDEA

Family BELONIDAE. Long-toms (see footnote p. 17)

Genus *Tylosurus* Cocco, 1833

*Tylosurus crocodilus* (Le Sueur)

- Esox belone* Forskål 1775, p. 67 (*nec* Linné).  
*Belone crocodilus* Le Sueur 1821, p. 129.  
*Tylosurus crocodilus* Weber and de Beaufort 1922, p. 128; Herre 1928, p. 229, Pl. 4, Fig. 2.  
 Reef front, north-east. New record for Australia. (4, 7). Reg. No.: L12.

*Tylosurus giganteus* (Schlegel)

- Belone gigantea* Schlegel 1846, p. 245.  
*Belone annulata* (Valenciennes) Cuvier and Valenciennes 1846, p. 332, Pl. 550.  
*Tylosurus annulatus* Weber and de Beaufort 1922, p. 126.  
*Tylosurus giganteus* Herre 1928, p. 226, Pl. 4, Fig. 1.  
 Fish trap. (1, 5)

*Tylosurus incisus* (Valenciennes)

- Belone incisa* Cuvier and Valenciennes 1846, p. 335.  
*Tylosurus incisus* Herre 1928, p. 223, Pl. 2.  
 Reef front, north-east. New record for Australia. (4, 7). Reg. No.: L11.

*Tylosurus macleayanus* (Ogilby)

- Belone gracilis* Macleay 1882b, p. 243 (*nec* Schlegel).  
*Belone macleayana* Ogilby 1886, p. 53.  
*Tylosurus macleayana* McCulloch 1927, p. 29, Pl. 9, Fig. 104b.  
 Inner reef flat, at high tide. (4, 7)

## Suborder EXOCOETOIDEA

Family EXOCOETIDAE. Flying fishes

Genus *Cypselurus* Swainson, 1839

*Cypselurus bahiensis* (Ranzani)

- Exocoetus bahiensis* Ranzani 1842, p. 362, Pl. 38.  
*Cypselurus bahiensis* Weber and de Beaufort 1922, p. 190.  
*Cypselurus bahiensis* Munro 1957, p. 16 (58) Fig. 415.  
 Open waters. (4, 7)

## Order SYNGNATHIFORMES

## Suborder AULOSTOMOIDEA

## Family AULOSTOMIDAE. Flute-mouths

## Subfamily Aulostominae

Genus *Aulostomus* Lacépède, 1803*Aulostomus chinensis* (Linné)*Fistularia chinensis* Linné 1766, p. 515.*Aulostoma valentini* Weber and de Beaufort 1922, p. 10, Fig. 3.*Aulostoma chinensis* Munro 1955, p. 80, Pl. 14, Fig. 215.*Aulostomus chinensis* Wheeler 1955, p. 616.

On coral strewn sandy shelf at base of north-western reef front. (7)

## Subfamily Fistulariinae

Genus *Fistularia* Linné, 1758*Fistularia petimba* Lacépède*Fistularia petimba* Lacépède 1803, p. 349; Weber and de Beaufort 1922, p. 14, Fig. 4; Munro 1955, p. 80, Pl. 14, Fig. 216.

Commonly seen feeding on sandy areas of reef flat when tide flooding. (4, 7)

## Suborder SYNGNATHOIDEA

## Family SYNGNATHIDAE. Pipefishes, seahorses

Genus *Corythoichthys* Kaup, 1853*Corythoichthys fasciatus* (Gray)*Syngnathus fasciatus* Gray 1830 (1830-32), Pl. 89, Figs. 2, 2a (*nec* Risso).*Syngnathus flavofasciatus* Rüppell 1838, p. 144; Weber 1913, p. 108, Fig. 34.*Corythoichthys fasciatus* Weber and de Beaufort 1922, p. 70, Fig. 31.

Common amongst coral on reef flat. (6)

Genus *Micrognathus* Duncker, 1912*Micrognathus brevirostris* (Rüppell)*Syngnathus brevirostris* Rüppell 1838, p. 144.*Micrognathus brevirostris* Weber and de Beaufort 1922, p. 75.*Syngnathus micronotus* Fowler 1938, p. 42, Fig. 14.

Dominant pipefish on reef flat. Found amongst coral and rubble. (6)

Genus *Choeroichthys* Kaup, 1856*Choeroichthys suillus malus* Whitley*Choeroichthys suillus malus* Whitley, 1954, p. 25; Whitley and Allan 1958, p. 60 (in checklist).

Found only on the inner reef flat. Not common. (6)

Genus *Yozia* Jordan and Snyder, 1901b*Yozia bicoarctata* (Bleeker)*Syngnathus bicoarctatus* Bleeker 1857a, p. 99.*Yozia bicoarctata* Weber and de Beaufort 1922, p. 101, Fig. 42.

Collected only on outer reef areas. Not common. (6)

## Order BERYCIFORMES

## Family HOLOCENTRIDAE. Soldierfishes

Genus *Holocentrus* Scopoli, 1777*Holocentrus praslin* (Lacépède)*Perca praslin* Lacépède 1802b, pp. 397, 415.*Holocentrus praslin* Jordan and Seale 1906, p. 225, Fig. 6; (Woods) Schultz *et al.* 1953, p. 215.*Holocentrum rubrum* Weber and de Beaufort 1929, p. 244 (*partim*).

Reef flat, reef front, and about coral in lagoon.

*Note:* Woods (Schultz *et al.* 1953, p. 216), discussing the identity of *Holocentrus praslin* (Lacépède) distinguishes it from *H. ruber* (Forskål) by the presence of an oblong spot on the distal portion of each segment of the spiny dorsal fin membrane (it is fully coloured in the smallest specimens), while in *H. ruber* the membrane is clear. Further in *H. praslin* the total length of the first soft ray and in some cases the tip of the second is black, the rest of the fin being pale. *H. ruber* is defined as having the distal third of all pelvic fin rays black.

Present specimens were identified in the field from Weber and de Beaufort (1929) who regard the two species as synonymous. Retained specimens have the distal ovoid spot (red in life) in each segment of the spiny dorsal membrane; however, the distal third of all pelvic fin rays is dark. It would seem that the distinction between *H. praslin* and *H. ruber* could bear further investigation and that the colour differences may only be age, or racial variations. (7)

*Holocentrus sammara* (Forskål)

*Sciaena sammara* Forskål 1775, p. 48.

*Holocentrum sammara* Weber and de Beaufort 1929, p. 233.

*Holocentrus sammara* Montilla 1938, p. 209, Pl. 1, Fig. 1; Smith 1953, p. 153, Pl. 9, Fig. 294.

Two collected at Shark Bay. (4, 7)

*Holocentrus spinifer* (Forskål)

*Sciaena spinifera* Forskål 1775, p. 49.

*Holocentrum spiniferum* Weber and de Beaufort 1929, p. 235.

*Holocentrus spinifer* Montilla 1938, p. 220, Pl. 4, Fig. 1; Schultz 1943, p. 68.

One collected in pool on outer reef flat. (4)

*Note:* Variations in the description of this species were encountered in the literature, including: diameter eye in head—3.2, 3.6, 4.0; length of head in body—2.7, 2.6, 3.0; for specimens of 88 mm (ours), 147 mm (Montilla 1938), and 246 mm (Weber and de Beaufort 1928), respectively.

The deep red coloration behind and above the pectoral, recorded by Montilla (1938), was not present on our specimen. Our colours are believed to be juvenile.

Genus *Myripristis* Cuvier, 1829

*Myripristis murdjan* (Forskål)

*Sciaena murdjan* Forskål 1775, p. 48.

*Myripristis murdjan* Weber and de Beaufort 1929, p. 259; Montilla 1938, p. 222, Pl. 4, Fig. 3.

Two found under the Wreck. (4)

Order MUGILIFORMES

Family SPHYRAENIDAE. Barracudas

Genus *Sphyraena* Walbaum, 1792

*Sphyraena jello* Cuvier

*Sphyraena jello* Cuvier and Valenciennes 1829a, p. 349; Weber and de Beaufort 1922, p. 220, Fig. 66; (Schultz) Schultz *et al.* 1953, p. 280 (in key).

Open waters; occasionally coming over reef. (7)

Family MUGILIDAE. Mulletts

Genus *Crenimugil* Schultz, 1946

*Crenimugil crenilabis* (Forskål)

*Mugil crenilabis crenilabis* Forskål 1775, pp. 14, 73.

*Crenimugil crenilabis* Thomson, 1954, p. 117, Fig. 13.

Sandy areas of reef flat and lagoon (uncommon). (7)

Genus *Liza* Jordan and Swain, 1885

*Liza vaigiensis* (Quoy and Gaimard)

*Mugil vaigiensis* Quoy and Gaimard 1824, p. 337, Pl. 59, Fig. 2.

*Liza vaigiensis* Thomson 1954, p. 103, Fig. 8.

Juveniles in north-west reef flat sandy areas. (7)

Genus *Mugil* Linné, 1758*Mugil cephalus* Linné

*Mugil cephalus* Linné 1758, p. 316; Smith 1953, p. 317, Fig. 877; Thomson 1954, p. 91, Pl. 1, Fig. 1.

Sandy areas of reef flat and lagoon: present all year round. (7)

Genus *Myxus* Günther, 1861a*Myxus elongatus* Günther

*Myxus elongatus* Günther 1861a, p. 466; Thomson 1954, p. 113, Fig. 12.

Sandy areas of reef flat and lagoon. (7)

## Family ATHERINIDAE. Hardyheads

Genus *Pranesus* Whitley, 1930a*Pranesus capricornensis* Woodland

*Pranesus capricornensis* Woodland 1961, p. 540, Figs. 1, a, b.

Schools of tens of thousands over reef flat from March to August; presumably in open waters in warmer months. (7). Reg. No.: H701.

## Order PERCIFORMES

## Suborder PERCOIDEA

## Family SERRANIDAE. Cods, groupers

Genus *Epinephelus* Bloch, 1793*Epinephelus caeruleopunctatus* (Bloch)

*Holocentrus caeruleopunctatus* Bloch 1790, p. 94, Pl. 242, Fig. 2.

*Epinephelus caeruleopunctatus* Weber and de Beaufort 1931, p. 66; Smith 1953, p. 198, Pl. 18, Fig. 450.

Taken on the reef flat and reef front. Rare. (4)

*Epinephelus fasciatus* (Forskål)

*Perca fasciata* Forskål 1775, p. 40, Pl. 58.

*Serranus fasciatus* Fowler and Bean 1930, p. 263.

*Epinephelus fasciatus* Weber and de Beaufort 1931, p. 58; (Schultz) Schultz *et al.* 1953, p. 342, Pl. 30, C.

Benthonic; open waters and reef front. (7)

*Epinephelus fuscoguttatus* (Forskål)

*Perca summana fusco-guttata* Forskål 1775, p. 42.

*Serranus fusco-guttatus* Fowler and Bean 1930, p. 284, Fig. 22.

*Epinephelus fuscoguttatus* Weber and de Beaufort 1931, p. 68.

Benthonic; open water reef shoals, reef front; occasionally coming on to reef flat. (4, 7)

*Epinephelus lanceolatus* (Bloch)

*Holocentrus lanceolatus* Bloch 1790, p. 92, Pl. 242, Fig. 1.

*Promicrops lanceolatus* Fowler and Bean 1930, p. 297, Fig. 24.

*Epinephelus lanceolatus* Weber and de Beaufort 1931, p. 70.

Open water reef shoals, reef front: on one occasion taken in fish trap. (7)

*Epinephelus merra* Bloch

*Epinephelus merra* Bloch 1793, p. 17, Pl. 329; Weber and de Beaufort 1931, p. 64; Smith 1953, p. 196, Pl. 18, Fig. 439; (Schultz) Schultz *et al.* 1953, p. 343, Pl. 25, A.

About coral in lagoon, outer reef flat, and open water shoals. (4, 7)

*Epinephelus summana* (Forskål)

*Perca summana* Forskål 1775, p. 42.

*Serranus summana* Fowler and Bean 1930, p. 280, Figs. 20, 21.

*Epinephelus summana* Weber and de Beaufort 1931, p. 54.

About coral in open waters. (7)



*Epinephelus tauvina* (Forskål)*Perca tauvina* Forskål 1775, p. 39.*Serranus tauvina* Fowler 1928, p. 182, Fig. 42; Fowler and Bean 1930, p. 287.

About coral in open waters; occasionally coming over reef. A juvenile taken amongst coral in Shark Bay. Not common. (4, 7)

Genus *Variola* Swainson, 1839*Variola louti* (Forskål)*Perca louti* Forskål 1775, p. 40.*Variola louti* Weber and de Beaufort 1931, p. 12, Fig. 4; (Schultz) Schultz *et al.* 1953, p. 361, Pl. 28.

One angled from coral bottom—open water, north of reef, August 1956. (7)

Genus *Cephalopholis* (Bloch) Bloch and Schneider, 1801*Cephalopholis miniatus* (Forskål)*Perca miniata* Forskål 1775, p. 41.*Cephalopholis miniatus* Fowler and Bean 1930, p. 210, Fig. 8; (Schultz) Schultz *et al.* 1953, p. 369, Pl. 31, C.

A single individual (400 mm) angled from coral bottom in 3 fm, just outside south-western edge of reef, February 1957. (7)

*Cephalopholis pachycentron* (Valenciennes)*Serranus pachycentron* Cuvier and Valenciennes 1828, p. 205.*Epinephelus pachycentrum* Weber and de Beaufort 1931, p. 19.*Cephalopholis pachycentron* Smith 1953, p. 504, Pl. 102, Fig. 425a.

Taken amongst coral on reef flat. Rare. (4)

Genus *Cromileptes* Swainson, 1839*Cromileptes altivelis* (Valenciennes)*Serranus altivelis* Cuvier and Valenciennes 1828, p. 324, Pl. 35.*Cromileptes altivelis* Fowler and Bean 1930, p. 300, Fig. 25 (juv.); Weber and de Beaufort 1931, p. 85, Fig. 10.

Taken occasionally on reef front and reef flat. (4)

Genus *Plectropomus* (Cuvier) Oken, 1817*Plectropomus maculatus* (Bloch)*Bodianus maculatus* Bloch 1790, p. 48, Pl. 228.*Plectropomus maculatus* Fowler and Bean, 1930, p. 197, Fig. 6; Smith 1953, p. 189, Pl. 17, Fig. 417, Pl. 106, Figs. 417.*Plectropoma maculatum* Weber and de Beaufort 1931, p. 77, Fig. 8.

About coral in all areas. (4, 7)

*Note:* One of the commonest fishes about the reefs of the area. The largest specimens are found in deepest waters; the smallest in the shallows, e.g. the outer reef flat.

The typical ground colour is grey to black, though individuals from deeper waters (to 30 fm) are usually orangeish, or grey to black suffused with red; the whole being strewn with numerous blue ocellar spots. Smith (1953) figures a number of bizarre colour variations. The only extreme variation of this type, seen during underwater observations, was a small fish, c. 300 mm, in which the body colour was white broken by three or four inverted yellow triangles extending from the base of the dorsal fin to a mid lateral position. (7)

## Family DIPLOPRIONIDAE

Genus *Diploprion* (Kuhl and van Hasselt) Cuvier and Valenciennes, 1828*Diploprion bifasciatum* Kuhl and van Hasselt*Diploprion bifasciatum* (Kuhl and van Hasselt) Cuvier and Valenciennes 1828, p. 137, Pl. 21; Weber and de Beaufort 1931, p. 9, Fig. 3.

Seen about coral in lagoon, reef flat, and reef front, but uncommon. (4, 7)

## Family RAINFORDIIDAE

Genus *Rainfordia* McCulloch, 1923b*Rainfordia opercularis* McCulloch

*Rainfordia opercularis* McCulloch 1923b, p. 120, Pl. 16, Fig. 3.

One from a south-western reef crest pool. (4). Reg. No.: H405.

*Note:* Previously known only from the holotype, collected by Mr. E. H. Rainford at Middle Island, Edgecumbe Bay, 1922, and a specimen collected by Mr. T. C. Marshall (Whitley, personal communication).

## Family PSEUDOCROMIDAE

## Subfamily Pseudochrominae

Genus *Pseudochromis* Rüppell, 1838*Pseudochromis (Devisina) aureus* Seale

*Pseudochromis aurea* Seale 1909, p. 528.

*Pseudochromis (Devisina) aureus* Fowler 1931, p. 27.

One taken amongst coral on outer reef flat. (4)

*Pseudochromis (Assiculus) cyanotaenia* Bleeker

*Pseudochromis cyanotaenia* Bleeker 1857c, p. 72.

*Pseudochromis (Assiculus) cyanotaenia* Fowler 1931, p. 24.

*Pseudochromis (Leptochromis) cyanotaenia* Weber and de Beaufort 1931, p. 135.

Fairly common amongst coral on outer reef flat. (4)

*Pseudochromis (Leptochromis) tapeinosoma* Bleeker

*Pseudochromis tapeinosoma* Bleeker 1853a, p. 115.

*Pseudochromis (Leptochromis) tapeinosoma* Weber and de Beaufort 1931, p. 135, Fig. 23.

Co-dominant pseudochromid with *Ogilbyina longipinnis*. About coral in all areas. (6, 4)

Genus *Ogilbyina* Fowler, 1931*Ogilbyina longipinnis* (Ogilby)

*Dampiera longipinnis* Ogilby 1908b, p. 34.

*Dampiera (Ogilbyina) longipinnis* Fowler 1931, p. 19.

Co-dominant pseudochromid with *P. (L.) tapeinosoma*. About coral in all areas. (6)

## Family THERAPONIDAE. Grunters, lion-fishes

Genus *Therapon* Cuvier, 1817*Therapon jarbua* (Forskål)

*Sciaena jarbua* Forskål 1775, p. 50.

*Therapon jarbua* Weber and de Beaufort 1931, p. 147, Fig. 26; Smith 1953, p. 183, Fig. 401.

Taken only along north-western beachrock and Shark Bay. Not common. (4)

## Family PLESIOPIDAE. Roundheads

Genus *Plesiops* (Cuvier) Oken, 1817*Plesiops coeruleolineatus* Rüppell

*Plesiops coeruleolineatus* Rüppell 1838, p. 5, Pl. 2, Fig. 5; Inger 1955, p. 270, Figs. 2a, 3a.

*Plesiops melas* Weber and de Beaufort 1929, p. 378.

*Note:* This species and the next had been confused in the field. Apparently **both** were common and found amongst coral of the reef flat and edge. (7)

*Plesiops corallicola* Bleeker

*Plesiops corallicola* Bleeker 1853c, p. 280; Inger 1955, p. 266, Figs. 1a, 2b, 2c, 3c.

*Plesiops nigricans* Weber and de Beaufort 1929, p. 375 (*nec* Rüppell).

*Note:* See previous species. (7)

? *Plesiops oxycephalus* Bleeker

*Plesiops oxycephalus* Bleeker 1855a, p. 320; Weber and de Beaufort 1929, p. 377; Inger 1955, p. 274, Figs. 1c, 3b.

Note: This record needs confirmation: identification based on a Kodachrome transparency. (7)

Genus *Paraplesiops* Bleeker, 1875*Paraplesiops poweri* Ogilby

*Paraplesiops poweri* Ogilby 1908a, p. 17;—1918, p. 50, Pl. 18.

One reef crest pool. (4)

Genus *Belonepterygion* McCulloch, 1915b*Belonepterygion fasciolatum* (Ogilby)

*Acanthoclinus fasciolatus* Ogilby 1889, p. 63, Pl. 3, Fig. 3.

*Belonepterygion fasciolatum* McCulloch 1915b, p. 51.

Common amongst coral on reef flat. (6)

## Family APOGONIDAE. Cardinal fishes

Genus *Apogon* Lacépède, 1802a*Apogon aureus* (Lacépède)

? *Ostorhinchus Fleuriu* Lacépède 1802a, Pl. 32, Fig. 2;—1802b, p. 23.

*Centropomus aureus* Lacépède 1802b, pp. 253, 273.

*Amia aurea* Bleeker 1875 (1875-76), Pl. 337, Fig. 1.

*Apogon aureus* Weber and de Beaufort 1929, p. 319.

Collected amongst coral of inner reef flat. Not common. (4)

*Apogon bandanensis* Bleeker

*Apogon bandanensis* Bleeker 1854a, p. 95; Weber and de Beaufort 1929, p. 317; Smith 1953, p. 207, Pl. 23, Fig. 482; (Lachner) Schultz *et al.* 1953, p. 438, Pl. 38, B.

Inner reef flat. (4, 7)

*Apogon cardinalis* (Seale)

*Amia cardinalis* Seale 1909, p. 503; Fowler and Bean 1930, p. 102.

Common amongst coral in outer areas of reef. New record for Australia. (4). Reg. No.: H402.

*Apogon endekataenia* Bleeker

*Apogon endekataenia* Bleeker 1852b, p. 449; Weber and de Beaufort 1929, p. 306.

*Amia endekataenia* Fowler and Bean, 1930, p. 50.

In all coral areas. Co-dominant apogonid with *A. novemfasciatus*. (4)

*Apogon frenatus* Valenciennes

*Apogon frenatus* Valenciennes 1832, p. 57, Pl. 4, Fig. 4; Weber and de Beaufort 1929, p. 295.

Several collected in a reef crest pool. Uncommon. (4)

*Apogon margaritophorus* Bleeker

*Apogon margaritophorus* Bleeker 1854e, p. 363; Weber and de Beaufort 1929, p. 299.

*Amia margaritophora* Fowler and Bean 1930, p. 77.

Taken on north-eastern reef front. (7)

*Apogon nigrocinctus* (Smith and Radcliffe)

*Amia nigrocincta* (Smith and Radcliffe) Radcliffe 1912, p. 435, Pl. 37, Fig. 2; Fowler and Bean 1930, p. 96.

One collected on north-eastern reef front.

Note: Our specimen differs from that of Smith and Radcliffe (*loc. cit.*) in having a slightly shorter head and the maxillary expansion a little smaller. A new record for Australia. (4).

Reg. No.: H403.

Genus *Archamia* Gill, 1864a*Archamia lineolata* (Ehrenberg)

- Apogon lineolatus* (Ehrenberg) Cuvier and Valenciennes 1828, p. 160.  
*Archamia lineolata* (Lachner) Schultz *et al.* 1953, p. 477, Pls. 39, A, 40, A.  
 Moderately common on outer reef flat. (4, 7)

Genus *Apogonichthys* Bleeker, 1854c*Apogonichthys auritus* (Valenciennes)

- Apogon auritus* Cuvier and Valenciennes 1831, p. 443.  
*Apogonichthys auritus* Fowler and Bean 1930, p. 6.  
*Papillapogon auritus* Smith 1953, p. 209, Pl. 23, Fig. 491.  
 Fairly common amongst coral of the reef flat. (4, 6)

Genus *Neamia* (Smith and Radcliffe) Radcliffe, 1912*Neamia octospina* Smith and Radcliffe

- Neamia octospina* (Smith and Radcliffe) Radcliffe 1912, p. 441, Pl. 36, Fig. 2; Fowler and Bean 1930, p. 22.  
 One obtained from a reef crest pool. New record for Australia; previously known from a single specimen taken in the Philippines. (4). Reg. No.: H404.

Genus *Lovamia* Whitley, 1930a*Lovamia cooki* (Macleay)

- Apogon cookii* Macleay 1881, p. 344.  
*Amia fasciata novemfasciata* McCulloch 1915a, p. 117.  
*Apogon novemfasciatus* Weber and de Beaufort 1929, p. 302.  
 Amongst coral in all areas investigated. Co-dominant apogonid with *Apogon endekataenia*. (4, 6)

Genus *Siphamia* Weber, 1909*Siphamia zaribae* Whitley

- Siphamia zaribae* Whitley 1959a, p. 323;—1959b, p. 15, Fig. 5.  
 Found amongst spines of the sea-urchin *Echinothrix calmaris* (Pallas), but not amongst those of *Diadema setosum* (Leske). (4)

## Family SILLAGINIDAE. Whiting

Genus *Sillago* Cuvier, 1817*Sillago ciliata* Cuvier

- Sillago ciliata* Cuvier and Valenciennes 1829a, p. 415; McCulloch 1927, p. 50, Fig. 154a; Fowler 1928, p. 235.  
 Over sandy areas of the reef flat and the beach at high water. Moderately common. (4)

## Family CORYPHAENIDAE. Dolphins

Genus *Coryphaena* Linné, 1758*Coryphaena hippurus* Linné

- Coryphaena hippurus* Linné 1758, p. 261; Weber and de Beaufort 1931, p. 185, Figs. 37, 38, 39.  
 Open waters. (1)

## Family CARANGIDAE

## Subfamily Caranginae. Trevally, scad, jacks

Genus *Caranx* Lacépède, 1802a*Caranx ferdau* (Forskål)

- Scomber ferdau* Forskål, 1775, p. 55.  
*Caranx (Carangoides) ferdau* Weber and de Beaufort 1931, p. 228.  
*Caranx ferdau* Smith 1953, p. 218, Fig. 523.  
 Very occasionally taken in fish trap in winter months. (7)

*Caranx georgianus* Cuvier

*Caranx georgianus* Cuvier and Valenciennes 1833, p. 85; McCulloch 1915a, p. 126, Pl. 20; McCulloch 1924, p. 67 (in key only).

Lagoon and reef flats, in winter months. (7)

*Caranx gymnostethoides* (Bleeker)

*Carangoides gymnostethoides* Bleeker 1851b, p. 364; Munro 1955, p. 128, Pl. 23, Fig. 355.

*Caranx (Carangoides) gymnostethoides* Weber and de Beaufort 1931, p. 231.

Open waters. (7)

*Caranx ignobilis* (Forskål)

*Scomber ignobilis* Forskål 1775, p. 55.

*Caranx (Caranx) ignobilis* Weber and de Beaufort 1931, p. 255.

*Caranx ignobilis* Smith 1953, p. 217, Fig. 520, Pl. 105, Fig. 520.

Very occasionally taken in fish trap in summer. (7)

*Caranx melampygus* (Cuvier)

*Caranx melampygus* Cuvier and Valenciennes 1833, p. 116; McCulloch 1924, p. 70, Pl. 11, Fig. 2.

*Caranx (Caranx) melampygus* Weber and de Beaufort 1931, p. 248.

One taken in fish trap, January 1957. (7)

*Caranx sexfasciatus* Quoy and Gaimard

*Caranx sexfasciatus* Quoy and Gaimard 1824, p. 358, Pl. 65, Fig. 4; Smith 1953, p. 216, Pls. 25, 105, Figs. 511.

*Caranx (Caranx) sexfasciatus* Weber and de Beaufort 1931, p. 243.

Lagoon. (7)

*Caranx stellatus* Eydoux and Souleyet

*Caranx caeruleopinnatus* (Cuvier) Cuvier and Valenciennes 1833, p. 119 (*nec* Rüppell).

*Caranx stellatus* Eydoux and Souleyet 1841, p. 167, Pl. 3, Fig. 2.

*Caranx (Caranx) stellatus* Weber and de Beaufort 1931, p. 253, Fig. 48.

Ubiquitous. Schools occasionally move over inner reef flat at high tides. (7)

*Caranx speciosus* (Forskål)

*Scomber rim speciosus* Forskål 1775, p. 54.

*Caranx (Gnathanodon) speciosus* Weber and de Beaufort 1931, p. 264, Fig. 50.

*Caranx speciosus* Smith 1953, p. 215, Pls. 25, 105, Figs. 506.

Ubiquitous; absent from reef in summer. (7)

Genus *Selar* Bleeker, 1851b*Selar crumenophthalmus* (Bloch)

*Scomber crumenophthalmus* Bloch 1793, p. 77, Pl. 343.

*Selar crumenophthalmus* Fowler 1928, p. 144, Fig. 37.

*Caranx (Selar) crumenophthalmus* Weber and de Beaufort 1931, p. 210.

Six juveniles taken at the Wreck, September 1957. New record for Australia. (4, 7). Reg. No.: L96.

Genus *Alectis* Rafinesque, 1815*Alectis ciliaris* (Bloch)

*Zeus ciliaris* Bloch 1787, p. 29, Pl. 191.

*Alectis ciliaris* Weber and de Beaufort 1931, p. 269; Roxas and Agco 1941, p. 51, Pl. 9, Fig. 2.

A juvenile (55 mm in standard length) taken inner reef flat, December 1956. (7)

## Subfamily Scomberoidinae. Leatherjacks

Genus *Scomberoides* Lacépède, 1802a*Scomberoides sanctipetri* (Cuvier)

*Chorinemus sancti-petri* Cuvier and Valenciennes 1832, p. 379, Pl. 236; Munro 1955, p. 130, Pl. 24, Fig. 367.

*Chorinemus sanctipetri* Weber and de Beaufort 1931, p. 280.

One taken in fish trap, September 1956. (7)

## Subfamily Trachinotinae. Darts

Genus *Trachinotus* Lacépède, 1802a*Trachinotus blochi* (Lacépède)*Scomber falcatus* Forskål 1775, p. 57.*Caesiomorus blochii* Lacépède 1802a, p. 95, Pl. 3, Fig. 2.*Trachinotus blochi* Weber and de Beaufort 1931, p. 286.*Trachinotus ovatus* Ogilby 1916b, p. 154, Pl. 19.

Shallow sandy areas. (7)

*Trachinotus botla* (Shaw)*Borla Parah* Russell 1803, p. 32, Pl. 142.*Scomber botla* Shaw 1803, p. 591 (after Russell).*Trachinotus botla* Ogilby 1915, p. 93, Pl. 28; Ogilby 1916b, pp. 149 (in key), 151.

Lagoon; moving on to inner reef flat as tide rises. (7)

*Trachinotus bailloni* (Lacépède)*Caesiomorus bailloni* Lacépède 1802a, p. 93, Pl. 3, Fig. 1.*Trachinotus bailloni* Ogilby 1916b, p. 149, Pl. 18.A single specimen taken in fish trap with a school of *T. botla*, January 1957. (7)

## Subfamily Seriolinae. Kingfish, etc.

Genus *Seriola* Cuvier, 1829*Seriola grandis* Castelnau*Seriola grandis* Castelnau 1872, p. 114; McCulloch 1915a, p. 121, Pl. 35, Fig. 1.

Open waters. (7)

## Family RACHYCENTRIDAE. Sergeant fish

Genus *Rachycentron* Kaup, 1826*Rachycentron canadus* (Linné)*Gasterosteus canadus* Linné 1766, p. 491.*Rachycentron canadus* Weber and de Beaufort 1931, p. 302, Fig. 63.

Open waters. (7)

## Family LUTIANIDAE

## Subfamily Lutianinae. Sea perch, etc.

Genus *Lutianus* Bloch, 1790*Lutianus amabilis* (De Vis)*Genyoroge amabilis* De Vis 1885b, p. 145.*Lutianus amabilis* McCulloch 1915b, p. 53, Pl. 18.

Benthonic; in open waters amongst coral. (7)

*Lutianus argentimaculatus* (Forskål)*Sciaena argenti-maculata* Forskål 1775, p. 47.*Lutjanus argentimaculatus* Weber and de Beaufort 1936, p. 246.*Lutjanus argentimaculatus* Smith 1953, p. 255, Fig. 664, Pl. 37, Fig. 664.

Benthonic; in open waters amongst coral. (4, 7)

*Lutianus chrysotaenia* (Bleeker)*Mesoprion chrysotaenia* Bleeker 1851c, p. 170.*Lutjanus chrysotaenia* Bleeker 1872, Pl. 302, Fig. 4; Weber and de Beaufort 1936, p. 248.

Outer reef flat. (4, 7)

*Lutianus coatesi* Whitley*Lutjanus coatesi* Whitley 1934, p. 176, Fig. 1, Pl. 26; Fig. 2.

One taken while angling outside reef edge, August 1956. (7)

*Lutianus fulviflamma* (Forskål)*Sciaena fulviflamma* Forskål 1775, p. 45.*Lutjanus fulviflamma* Weber and de Beaufort 1936, p. 270.*Lutianus fulviflamma* Smith 1953, p. 254, Pl. 38, Fig. 659.

Deeper waters amongst coral, e.g. lagoon, outer reef, and reef front. (7)

*Lutianus johni* (Bloch)*Anthias johni* Bloch 1792, p. 113, Pl. 318.*Lutjanus johni* Weber and de Beaufort 1936, p. 244.*Lutianus johni* Smith 1953, p. 254, Pl. 38, Fig. 661.Distribution possibly similar to *L. fulviflamma*. (7)*Lutianus nematophorus* (Bleeker)*Mesoprion nematophorus* Bleeker 1860b, p. 56.*Lutianus nematophorus* Ogilby 1920, p. 20, Pl. 1.*Lutjanus nematophorus* Fowler 1931, p. 95, Fig. 10; Weber and de Beaufort 1936, p. 240.

Open waters where coral growths on bottom. (7)

*Lutianus russelli* (Bleeker)*Mesoprion Russellii* Bleeker 1849b, p. 41.*Lutjanus russelli* Weber and de Beaufort 1936, p. 272.*Lutianus russelli* Smith 1953, p. 254, Pl. 39, Fig. 660.Similar distribution to *L. fulviflamma*. Much more common than this species, particularly in outer reef flat areas. (7)*Lutianus sebae* (Cuvier)*Diacope Sebae* Cuvier and Valenciennes 1828, p. 411.*Lutjanus sebae* Weber and de Beaufort 1936, p. 261.*Lutianus sebae* Smith 1953, p. 255, Pl. 97, Fig. 665.

Adults benthonic in deep open waters; young about open water coral covered shoals. (4, 7)

## Subfamily Scolopsinae. Spinecheeks

Genus *Scolopsis* Cuvier, 1815b*Scolopsis bilineatus* (Bloch)*Anthias bilineatus* Bloch 1793, p. 3, Pl. 325, Fig. 1.*Scolopsis bilineatus* Fowler 1931, p. 292, Fig. 24; Weber and de Beaufort 1936, p. 339.

Outer reef flat, and amongst coral in lagoon. (4)

*Scolopsis cancellatus* (Cuvier)*Scolopsides cancellatus* Cuvier and Valenciennes 1830a, p. 351; Bleeker 1872, Pl. 309, Fig. 2.*Scolopsis cancellatus* Weber and de Beaufort 1936, p. 335.

Outer reef flat, and amongst coral in lagoon. (4, 7)

*Scolopsis temporalis* (Cuvier)*Scolopsides temporalis* Cuvier and Valenciennes 1830a, p. 341.*Scolopsis temporalis* McCulloch 1921, p. 469, Pl. 40, Fig. 3; Weber and de Beaufort 1936, p. 342, Fig. 71.

Amongst coral growths in all areas, venturing over reef flat at high tide. (7)

## Subfamily Pentapodinae

Genus *Pentapus* (Valenciennes) Cuvier and Valenciennes, 1830b*Pentapus setosus* Valenciennes*Pentapus setosus* Cuvier and Valenciennes 1830b, p. 270; McCulloch 1927, p. 61, Pl. 26, Fig. 217a; Weber and de Beaufort 1936, p. 384.

Occasionally taken while angling just outside reef edge. (7)

Genus *Gymnocranius* Klunzinger, 1870*Gymnocranius audleyi* Ogilby

*Gymnocranius audleyi* Ogilby 1916b, p. 170, Pl. 22.

*Gymnocranius bitorquatus* Fowler 1933, p. 132.

Sandy shoals of the open waters. (7)

## Subfamily Pomadasyinae. Grunters

Genus *Pomadasy* Lacépède, 1802b*Pomadasy hasta* (Bloch)

*Lutjanus hasta* Bloch 1790, p. 109, Pl. 246, Fig. 1.

*Pomadasy hasta* Fowler 1931, p. 313; Weber and de Beaufort 1936, p. 402, Fig. 78; Smith 1953, p. 258, Fig. 676.

One taken in fish trap, January 1957. This species is more typical of the coastal to estuarine waters. (7)

## Subfamily Plectorhinchinae. Sweetlips, blubberlips

Genus *Plectorhinchus* Lacépède, 1802a*Plectorhinchus (Pseudopristipoma) nigrus* (Mertens)

*Pristipoma nigrum* (Mertens) Cuvier and Valenciennes 1830a, p. 258.

*Plectorhinchus (Pseudopristipoma) nigrus* Fowler 1931, p. 233, Fig. 17.

*Plectorhynchus crassispina* Weber and de Beaufort 1936, p. 410.

Waters just outside reef edge. (6)

*Plectorhinchus (Spilotichthys) pictus* (Thunberg)

*Perca picta* Thunberg 1792, p. 143.

*Plectorhinchus (Spilotichthys) pictus* Fowler 1931, p. 260, Figs. 22, 23.

*Spilotichthys pictus* Smith 1953, p. 261; Pl. 42, Figs. 688.

Amongst coral growths in lagoon. (7)

*Plectorhinchus (Gaterin) reticulatus* (Günther)

*Diagramma reticulatum* Günther 1859, p. 334.

*Plectorhinchus reticulatus* McCulloch 1916, p. 185, Pl. 53.

*Gaterin reticulatus* Smith, 1953, p. 262, Pl. 42, Fig. 693.

One adult taken in fish trap, September 1956. (7)

*Plectorhinchus (Gaterin) sordidus* (Klunzinger)

? *Sciaena abu-mgaterin schotaf* Forskål 1775, p. 51.

*Diagramma sordidum* Klunzinger 1870, p. 735.

*Gaterin sordidum* Smith 1953, p. 519, Fig. 692a.

Open waters just outside reef edge. (7)

## Subfamily Lethrininae. Sweetlip emperors

Genus *Lethrinus* Cuvier, 1829*Lethrinus chrysostomus* Richardson

*Lethrinus chrysostomus* Richardson (1844-48) 1848, p. 118, Pl. 60, Figs. 6, 7; Fowler 1933, p. 46; Marshall *et al.* 1959, p. 18, Fig.

Abundant amongst coral outside reef edge; a few over reef at high tide. (7)

*Lethrinus leutjanus* (Lacépède) Bleeker

? *Bodianus leutjan* Lacépède 1802b, p. 281.

*Lethrinus leutjanus* Bleeker 1850, p. 14; Herre and Montalban 1927a, p. 421, Pl. 4, Fig. 2; Fowler 1933, p. 57.

Lagoon, clear bottoms in open waters; coming on to reef flat at high tides, particularly at night. (7)

*Lethrinus mahsena* (Forskål)

*Sciaena mahsena* Forskål 1775, p. 52.

*Lethrinus mahsena* Herre and Montalban 1927a, p. 417, Pl. 8, Fig. 1; Fowler 1933, p. 53.

Recorded from 1954-55 arrowhead trap catches. Not seen by us. (1)



*Lethrinus mahsenoides* Ehrenberg

*Lethrinus mahsenoides* (Ehrenberg) Cuvier and Valenciennes 1830b, p. 286; Fowler 1933, p. 45.

*Lethrinus insulindicus* Herre and Montalban 1927a, p. 424, Pl. 5, Fig. 1.

Waters outside and closely adjacent to reef edge (leeward areas). (7)

*Lethrinus reticulatus* Valenciennes

*Lethrinus reticulatus* Cuvier and Valenciennes 1830b, p. 298; Fowler 1933, p. 18; Weber and de Beaufort 1936, p. 438, Fig. 88.

*Lethrinus moensi* Herre and Montalban 1927a, p. 400, Pl. 1, Fig. 1.

Occasionally angled from bottom in deep water to north-west of reef. (7)

## Family SPARIDAE. Sea breams

Genus *Mylio* Lacépède, 1802b*Mylio australis* (Günther)

*Chrysophrys australis* Günther 1859, p. 494 (*partim*).

*Sparus australis* Fowler 1933, p. 151.

*Mylio australis* Munro 1949, p. 188, Pl. 16.

Sandy areas, beachrock zone, and inshore channel, at high tides from May-September. (7)

Genus *Rhabdosargus* Fowler, 1933*Rhabdosargus sarba* (Forskål)

*Sparus sarba* Forskål 1775, p. 31; Fowler 1933, p. 149.

*Rhabdosargus sarba* Munro 1949, p. 207, Pl. 21.

Sandy areas, beachrock zone, and inshore channel, at high tides throughout the year. (7)

## Family GERRIDAE. Silver-bellies

Genus *Gerres* (Cuvier) Quoy and Gaimard, 1824*Gerres oyena* (Forskål)

*Labrus oyena* Forskål 1775, p. 35.

*Gerres splendens* Whitley 1932a, p. 286, Fig. 3.

*Gerres oyena* Fowler 1933, p. 236, Fig. 16.

Beachrock and sandy areas of reef flat. Common. (4, 7)

## Family MULLIDAE. Goatfishes

Genus *Mulloidichthys* Whitley, 1929*Mulloidichthys auriflamma* (Forskål)

*Mullus auriflamma* Forskål 1775, p. 30.

*Mulloides auriflamma* Herre and Montalban 1928b, p. 130, Pl. 2, Fig. 3.

*Mulloidichthys auriflamma* Fowler 1933, p. 263.

Lagoon; moving on to sandy areas of reef flat at high tide. (4, 7)

Genus *Parupeneus* Bleeker, 1863a*Parupeneus barberinus* (Lacépède)

*Mullus barberinus* Lacépède 1802a, p. 406, Pl. 13, Fig. 3.

*Upeneus barberinus* Herre and Montalban 1928b, p. 109, Pl. 3, Fig. 3.

*Parupeneus barberinus* Weber and de Beaufort 1931, p. 392, Fig. 77.

Collected and observed on sandy areas of reef flat. Moderately common. (4)

*Parupeneus luteus* (Valenciennes)

*Upeneus luteus* Cuvier and Valenciennes 1831, p. 392; Herre and Montalban 1928b, p. 114, Pl. 5, Fig. 1.

*Parupeneus luteus* Weber and de Beaufort 1931, p. 401.

One collected in reef crest pool near the Wreck. (4)

*Parupeneus spilurus* (Bleeker)

*Upeneus spilurus* Bleeker 1854d, p. 395; Herre and Montalban 1928b, p. 117.

*Pseudupeneus spilurus* Fowler 1933, p. 280.

Lagoon; moving on to sandy areas of reef flat at high tide. (7)

## Family KYPHOSIDAE. Drummers

Genus *Kyphosus* Lacépède, 1802a*Kyphosus cinerascens* (Forskål)*Sciaena cinerascens* Forskål 1775, p. 53.*Kyphosus cinerascens* Herre and Montalban 1927a, p. 436, Pl. 7, Fig. 3; Fowler 1933, p. 211.

Shark Bay; moving on to beachrock zone at high tide. (7)

*Kyphosus gibsoni* Ogilby*Kyphosus gibsoni* Ogilby 1912, p. 50; McCulloch 1920, p. 59, Pl. 12, Fig. 3.

Shark Bay; moving on to beachrock zone at high tides. Occasionally large schools over reef flat, particularly in warmer months. (3, 7)

## Family PLATACIDAE. Batfishes

Genus *Platax* Cuvier, 1817*Platax novemaculeatus* McCulloch*Platax novemaculeatus* McCulloch 1916, p. 188, Pl. 55, Fig. 1.

Reef front: large schools over reef flat in late winter. (7)

*Platax pinnatus* (Linné)*Chaetodon pinnatus* Linné 1758, p. 272.*Platax pinnatus* Weber and de Beaufort 1936, p. 192, Fig. 49c.

Reef front. (7)

## Family CHAETODONTIDAE

Subfamily Chaetodontinae. Coral-fishes, butterfly-fishes

Genus *Microcanthus* Swainson, 1839*Microcanthus strigatus* (Langsdorf)*Chaetodon strigatus* (Langsdorf) Cuvier and Valenciennes 1831, p. 25, Pl. 170.*Microcanthus strigatus* McCulloch 1927, p. 65, Pl. 27, Fig. 234a; Weber and de Beaufort 1936, p. 22, Fig. 9.

Collected in beach rock pools, inshore channel, and inner reef flat. Common. (4)

Genus *Chelmon* Cloquet, 1817*Chelmon rostratus* (Linné)*Chaetodon rostratus* Linné 1758, p. 273.*Chelmon rostratus* McCulloch 1927, p. 65, Pl. 27, Fig. 231a; Weber and de Beaufort 1936, p. 20, Fig. 8.

Collected in a reef crest pool, but frequently observed on the reef front. Not common. (4)

Genus *Heniochus* Cuvier, 1817*Heniochus acuminatus* (Linné)*Chaetodon acuminatus* Linné, p. 272.*Heniochus acuminatus* Weber and de Beaufort 1936, p. 37, Fig. 12.

Collected from under the Wreck but frequently observed on the reef front. Not common. (4)

Genus *Megaprotodon* Guichenot, 1848*Megaprotodon strigangulus* (Gmelin)*Chaetodon strigangulus* Gmelin 1789, p. 1269.*Chaetodon (Megaprotodon) strigangulus* Herre and Montalban 1927b, p. 24, Pl. 4, Fig. 1.*Megaprotodon strigangulus* Weber and de Beaufort 1936, p. 51, Fig. 17.

Several taken on the outer reef flat. Uncommon. (4)

Genus *Chaetodon* Linné, 1758*Chaetodon aureofasciatus* Macleay*Chaetodon aureofasciatus* Macleay 1878, p. 351, Pl. 8, Fig. 3.

Outer reef flat. Not common. (4)

*Chaetodon flavirostris* Günther*Chaetodon flavirostris* Günther 1874, p. 41, Pl. 32, Fig. A.

Outer reef flat to reef front. Moderately common. (2)

*Chaetodon falcula* Bloch*Chaetodon falcula* Bloch 1793, p. 102, Pl. 325, Fig. 2; Fowler and Bean 1929, p. 134; Smith 1953, p. 237, Fig. 597, Pl. 106, Fig. 597.

Taken in a reef crest pool. Rare. (4)

*Chaetodon melannotus* Bloch*Chaetodon melannotus* Bloch and Schneider 1801, p. 224.*Chaetodon melanotus* Herre and Montalban 1927b, p. 44, Pl. 11, Fig. 2.

Collected from coral on the outer reef flat. Not common. (4)

*Chaetodon plebeius* (Gmelin)*Chaetodon plebeji* Gmelin 1789, p. 1269.*Chaetodon (Tetrachaetodon) plebeius* Weber and de Beaufort 1936, p. 56, Fig. 18.

Moderately common about coral in all areas. (6)

*Chaetodon rainfordi* McCulloch*Chaetodon rainfordi* McCulloch 1923a, p. 4, Pl. 2, Fig. 1.

Collected from coral on the outer reef flat outwards. Not common. (4)

*Chaetodon semeion* Bleeker*Chaetodon semeion* Bleeker 1855c, p. 450; Günther 1874, p. 37, Pl. 28; Fowler and Bean 1929, p. 79.*Chaetodon (Rhabdophorus) semeion* Weber and de Beaufort 1936, p. 61.

One from a reef crest pool. (4)

*Chaetodon speculum* Cuvier*Chaetodon speculum* Cuvier and Valenciennes 1831, p. 73; Herre and Montalban 1927b, p. 66, Pl. 34, Fig. 2.*Chaetodon (Rhabdophorus) speculum* Weber and de Beaufort 1936, p. 64.

Reef front, outer reef flat (uncommon). (4, 7)

Genus *Anisochaetodon* Klunzinger, 1884*Anisochaetodon auriga* (Forskål)*Chaetodon auriga* Forskål 1775, p. 60; Smith 1953, p. 237, Pl. 31, Fig. 592.*Anisochaetodon (Linophora) auriga* Weber and de Beaufort 1936, p. 103.

About coral—reef flat, lagoon, outer reef areas. The dominant chaetodont at Heron I. (4, 7)

*Anisochaetodon lineolatus* (Quoy and Gaimard)*Chaetodon lineolatus* (Quoy and Gaimard) Cuvier and Valenciennes 1831, p. 40.*Anisochaetodon (Oxychaetodon) lineolatus* Weber and de Beaufort 1936, p. 114, Fig. 29.

Moderately common about coral in outer areas of reef. (4, 7)

*Anisochaetodon vagabundus* (Linné)*Chaetodon vagabundus* Linné 1758, p. 276; Herre and Montalban 1927b, p. 32, Pl. 5, Fig. 2; Fowler and Bean 1929, p. 120.*Anisochaetodon (Linophora) vagabundus* Weber and de Beaufort 1936, p. 106.

Collected from coral on the outer reef flat. Not common. (4)

## Subfamily Pomacanthinae. Angelfishes

Genus *Pomacanthus* Lacépède, 1802b*Pomacanthus semicirculatus* (Lesson)*Holacanthus semicirculatus* Lesson 1830, p. 173, Pl. 30, Fig. 3; Herre and Montalban 1927b, p. 100, Pl. 19, Fig. 1 (juv.).*Holacanthus lepidolepis* Herre and Montalban 1927b, p. 103, Fig. 1 (adult).*Pomacanthus (Pomacanthodes) semicirculatus* Weber and de Beaufort 1936, p. 141, Figs. 36, 37.

Outer reef flat and reef crest pools. Uncommon. (4)

Genus *Chaetodontoplus* Bleeker, 1876*Chaetodontoplus conspicillatus* (Waite)*Holacanthus conspicillatus* Waite 1900, p. 203, Pl. 35.*Holacanthus (Chaetodontoplus) personifer* McCulloch 1914b, p. 221, Pl. 31.

Inner reef flat and in reef crest pools. Rare. (4)

Genus *Centropyge* Kaup, 1860*Centropyge bicolor* (Bloch)*Chaetodon bicolor* Bloch 1787, p. 95, Pl. 206, Fig. 1.*Holacanthus bicolor* Fowler and Bean 1929, p. 172.*Centropyge bicolor* Weber and de Beaufort 1936, p. 161, Fig. 42.

One collected on the north-eastern reef front. (4)

*Centropyge vroliki* (Bleeker)*Holacanthus vrolikii* Bleeker 1853e, p. 339.*Holacanthus vroliki* Herre and Montalban 1927b, p. 92, Pl. 22, Fig. 1; Fowler and Bean 1929, p. 164.*Centropyge vroliki* Weber and de Beaufort 1936, p. 167.

One taken in a south-western reef crest pool. (4). A new record for Australia. Reg. No.: H406.

## Family AMPHIPRIONIDAE. Anemone fishes

Genus *Amphiprion* (Bloch) Bloch and Schneider, 1801*Amphiprion bicinctus* Rüppell*Anthias polymnus* Bloch 1792, p. 103 (*nec Perca polymna* Linné).*Amphiprion bicinctus* Rüppell 1828, p. 139, Pl. 35, Fig. 1; de Beaufort 1940, p. 338; Munro 1955, p. 179, Pl. 35, Fig. 522.Invariably found in association with large sea anemones, usually of the genus *Stoiactis*. Moderately common. (4)*Amphiprion melanopus* Bleeker*Amphiprion melanopus* Bleeker 1852e, p. 561; de Beaufort 1940, p. 337.*Amphiprion ephippium* var. *melanopus* Günther 1881, p. 225, Pl. 122, Fig. D.As *A. bicinctus*. (2)*Amphiprion percula* (Lacépède)*Lutjanus percula* Lacépède 1802b, pp. 194, 239.*Amphiprion percula* Montalban 1927, p. 14, Pl. 2, Fig. 2; de Beaufort 1940, p. 345, Fig. 43.

Two found amongst tentacles of an unidentified species of sand-burrowing anemone on the north-eastern reef flat. (4)

*Amphiprion perideraion* Bleeker*Amphiprion perideraion* Bleeker 1855d, p. 437; Montalban 1927, p. 16, Pl. 4, Fig. 1; de Beaufort 1940, p. 332; Schultz 1953, p. 191, Pl. 9, Fig. B.

Identification on live fish housed in private aquarium; taken from anemone in 2-3 fm, open waters adjacent to south-western reef front. (7)

## Family POMACENTRIDAE. Demoiselles, coralfishes

Genus *Abudefduf* Forskål, 1775*Abudefduf bankieri* (Richardson)*Glyphisodon bankieri* Richardson 1846, p. 253.*Abudefduf bankieri* de Beaufort 1940, p. 411.

Found only under the Wreck. Rare. (4)

*Abudefduf coelestinus* (Cuvier)*Glyphisodon coelestinus* Cuvier and Valenciennes 1830a, p. 464.*Abudefduf coelestinus* Montalban 1927, p. 83, Pl. 8, Fig. 1; de Beaufort 1940, p. 409.

All reef areas investigated. Abundant. (2, 4)

*Abudefduf curacao* (Bloch)

*Chaetodon curacao* Bloch 1787, p. 106, Pl. 212, Fig. 1.

*Abudefduf curacao* Montalban 1927, p. 85, Pl. 17, Fig. 1; de Beaufort 1940, p. 414.

Collected on the north-western outer reef flat; observed amongst coral in the eastern lagoon. Not common. (4)

*Abudefduf hemicyaneus* Weber

*Glyphidodon cyaneus* Bleeker 1863b, p. 273 (*nec* Quoy and Gaimard).

*Abudefduf hemicyaneus* Weber 1913, p. 351; de Beaufort 1940, p. 430.

*Chrysiptera parasema* Montalban 1927, p. 100, Pl. 19, Fig. 1.

One from a reef crest pool. (4)

*Abudefduf melanopus* (Bleeker)

*Glyphisodon melanopus* Bleeker 1856c, p. 82.

*Paraglyphidodon melanopus* Bleeker 1877, Pl. 407, Fig. 7.

*Abudefduf melanopus* de Beaufort 1940, p. 422.

North-western outer reef flat. Uncommon. (4)

*Abudefduf melas* (Cuvier)

*Glyphisodon melas* Cuvier and Valenciennes 1830a, p. 472.

*Abudefduf melas* de Beaufort 1940, p. 424.

*Chrysiptera melas* Montalban 1927, p. 95, Pl. 19, Fig. 2.

Amongst coral on the outer reef flat and in the reef crest pools. Not common. (4)

*Abudefduf palmeri* (Ogilby)

*Glyphisodon palmeri* Ogilby 1913b, p. 87, Pl. 22, Fig. 2.

In beach rock pools and amongst coral on the inner reef flat. Common. (4)

*Abudefduf saxatilis vaigiensis* (Quoy and Gaimard)

*Chaetodon saxatilis* Linné 1758, p. 276.

*Glyphisodon vaigiensis* Quoy and Gaimard 1824, p. 391.

*Abudefduf saxatilis* Montalban 1927, p. 81, Pl. 17, Fig. 2.

*Abudefduf saxatilis vaigiensis* de Beaufort 1940, p. 404.

About coral in most areas; grazes about beachrock when flooded. (4, 7)

*Abudefduf septemfasciatus* (Cuvier)

*Glyphisodon septemfasciatus* Cuvier and Valenciennes 1830a, p. 463.

*Abudefduf septemfasciatus* de Beaufort 1940, p. 401, Fig. 49.

Found only in reef crest pools. Not common. (4)

*Abudefduf zonata* (Cuvier)

*Glyphisodon zonatus* Cuvier and Valenciennes 1830a, p. 483; Whitley 1926, p. 230, Pl. 34.

Collected and observed around rocks in the inshore channel. Moderately common. (4)

Genus *Acanthochromis* Gill, 1864c*Acanthochromis polyacanthus* (Bleeker)

*Dascyllus polyacanthus* Bleeker 1855e, p. 503.

*Acanthochromis polyacanthus* de Beaufort 1940, p. 447, Fig. 51.

All reef areas investigated excepting the inner part of the inner reef flat. Very common. (4)

Genus *Chromis* Cuvier, 1815b*Chromis caeruleus* (Cuvier)

*Heliases caeruleus* Cuvier and Valenciennes 1830a, p. 497.

*Chromis caeruleus* de Beaufort 1940, p. 451, Fig. 52.

Near coral on the outer reef flat, the reef crest pools and the reef front. Very common. (4)

Genus *Dascyllus* Cuvier, 1829*Dascyllus aruanus* (Linné)

*Chaetodon aruanus* Linné 1758, p. 275.

*Dascyllus aruanus* de Beaufort 1940, p. 467; Smith 1953, p. 280, Pl. 50, Fig. 749.

All reef areas investigated, except the inshore channel. Common. (6)

Genus *Pomacentrus* Lacépède, 1802b*Pomacentrus apicalis* De Vis*Pomacentrus apicalis* De Vis 1885a, p. 874.

Taken in a reef crest pool on south-western reef. Rare. (4)

*Pomacentrus nigricans* (Lacépède)*Holocentrus nigricans* Lacépède 1802b, pp. 332, 367.*Pomacentrus nigricans* de Beaufort 1940, p. 357, Fig. 46.

Taken only on the outer reef flat. Moderately common. (4)

*Pomacentrus notophthalmus* Bleeker*Pomacentrus notophthalmus* Bleeker 1853b, p. 137; de Beaufort 1940, p. 377; Munro 1955, p. 181, Pl. 35, Fig. 533.

Taken only on the outer reef flat. Rare. (4)

*Pomacentrus pavo* (Bloch)*Chaetodon pavo* Bloch 1787, p. 60, Pl. 198, Fig. 1.*Pomacentrus pavo* de Beaufort 1940, p. 385.

Taken only under the Wreck. Rare. (4)

*Pomacentrus sufflavus* Whitley*Pomacentrus sufflavus* Whitley 1927, p. 18, Pl. 1, Fig. 3.

All areas investigated. Abundant. (6)

*Pomacentrus tripunctatus* Cuvier*Pomacentrus tripunctatus* Cuvier and Valenciennes 1830a, p. 421; de Beaufort 1940, p. 388; Smith 1953, p. 281, Fig. 756.

All reef areas investigated. The dominant coral dwelling fish. (4)

*Pomacentrus* spp. juv.

Many indeterminable juvenile specimens of this genus were found on all parts of the reef. (4)

## Family LABRIDAE. Wrasses, tusk-fishes, etc.

Genus *Choerodon* Bleeker, 1849a*Choerodon albigena* (De Vis)*Choerops albigena* De Vis 1885a, p. 876.*Choerodon albigena* Marshall *et al.* 1959, p. 115, Fig.

Exhibits a spectacular mass feeding migration across the reef crest with the rising tide whence they spread out to forage over all areas of the inner reef. The majority retreat back over the reef edge as the tide falls, though a considerable residual population hides amongst the coral in the deeper areas of the reef flat at low tide. A dominant coral associating species. (1)

*Choerodon transversalis* Whitley*Choerodon transversalis* Whitley 1956, p. 258, Fig. 7.Movement similar to that shown by *C. albigena* but far less common than that species. (6)*Choerodon venustus* (De Vis)*Choerops venustus* De Vis 1885b, p. 147.*Choerodon venustus* Ogilby 1954, p. 77, Fig. 94.

Shoal areas of open waters: on bottoms of coral shingle, and sand sparsely dotted with coral clumps. (7)

Genus *Coris* Lacépède, 1802a*Coris gaimardi* (Quoy and Gaimard)*Julis Gaimard* Quoy and Gaimard 1824, p. 265, Pl. 24, Fig. 1.*Coris gaimardi* de Beaufort 1940, p. 242, Fig. 36.

Taken in reef crest pools and observed on the reef front. (4, 7)

*Coris variegata* (Rüppell)

- Halichoeres variegatus* Rüppell 1838, p. 14, Pl. 4, Fig. 1.  
*Hemicoris variegatus* Bleeker 1862c, p. 106, Pl. 36, Fig. 4.  
*Coris variegata* de Beaufort 1940, p. 249.

Reef front, reef crest pools; and on inner reef flat at high tide. (4, 7)

Genus *Hemicoris* Bleeker, 1862a*Hemicoris pallida* (Macleay)

- Coris pallida* Macleay 1882a, p. 100.  
*Hemicoris pallida* Whitley 1932a, p. 294, Fig. 4.

Found amongst coral on reef flat. Moderately common. (6)

Genus *Novaculichthys* Bleeker, 1862a*Novaculichthys taeniourus* (Lacépède)

- Labrus taeniourus* Lacépède 1802a, pp. 448, 518, Pl. 29, Fig. 1.  
*Novaculichthys taeniurus* de Beaufort 1940, p. 69, Fig. 14.  
*Novaculichthys taeniourus* Smith 1953, p. 293, Pl. 60, Fig. 81A.

One taken on north-eastern reef crest. (4)

Genus *Lienardella* Fowler and Bean, 1928*Lienardella fasciata* (Günther)

- Xiphocheilus fasciatus* Günther 1867, p. 101, Pl. 10.  
*Lepidaplois mirabilis* Snyder 1912, p. 506, Pl. 66, Fig. 1.  
*Lienardella fasciata* Fowler 1957, p. 68.

Present on reef front and outer slope amongst coral. (4)

Genus *Epibulus* Cuvier, 1815a*Epibulus insidiator* (Pallas)

- Sparus insidiator* Pallas 1769, p. 41, Pl. 5, Fig. 1.  
*Epibulus insidiator* de Beaufort 1940, p. 73, Fig. 15.

Several taken amongst coral on the outer reef flat. (4)

Genus *Cheilinus* Lacépède, 1802a*Cheilinus chlorurus* (Bloch)

- Sparus chlorurus* Bloch 1791, p. 24, Pl. 260.  
*Cheilinus chlorurus* de Beaufort 1940, p. 76.  
*Thalilius chlorurus* Smith 1953, p. 294, Pl. 61, Fig. 81B.

Fairly common on the outer reef flat and in reef crest pools. (4)

*Cheilinus fasciatus* (Bloch)

- Sparus fasciatus* Bloch 1791, p. 18, Pl. 257.  
*Cheilinus fasciatus* de Beaufort 1940, p. 81, Fig. 16.

Found occasionally on the outer reef flat. (4)

*Cheilinus diagrammus* (Lacépède)

- Labrus diagramma* Lacépède 1802a, pp. 448, 517.  
*Cheilinus diagramma* de Beaufort 1940, p. 88.  
*Cheilinus diagrammus* Smith 1953, p. 294, Fig. 817, Pl. 107, Fig. 817.

Amongst coral on outer reef flat. Rare. (4)

*Cheilinus trilobatus* Lacépède

- Cheilinus trilobatus* Lacépède 1802a, p. 529, Pl. 3, Fig. 3; de Beaufort 1940, p. 79; Smith 1953, p. 294, Pl. 56, Fig. 816.

Deeper areas of outer reef flat. (4, 7)

*Cheilinus undulatus* Rüppell

- Cheilinus undulatus* Rüppell 1838, p. 20, Pl. 6, Fig. 2; Fowler and Bean 1928, p. 352; de Beaufort 1940, p. 83; Munro 1955, p. 187, Pl. 37, Fig. 550.

Occasionally taken by angling in open waters, e.g. adjacent to reef front and coral covered shoals. (1)

Genus *Anampses* Quoy and Gaimard, 1824*Anampses pterophthalmus* Bleeker

*Anampses pterophthalmus* Bleeker 1857a, p. 81; de Beaufort 1940, p. 101.

Amongst coral on the outer reef flat. Rare. (4). A new record for Australia. Reg. No.: H407.

Genus *Gomphosus* Lacépède, 1802a*Gomphosus varius* Lacépède

*Gomphosus varius* Lacépède 1802a, p. 104, Pl. 5, Fig. 2; de Beaufort 1940, p. 114, Fig. 21; Schultz 1943, p. 197.

Amongst coral on the outer reef flat. Rare. (4). A new record for Australia. Reg. No.: H408.

Genus *Thalassoma* Swainson, 1839*Thalassoma hardwicki* (Bennett, J. W.)

*Sparus hardwicke* Bennett 1829 (1828-30), Pl. 12, text.

*Thalassoma hardwicki* de Beaufort 1940, p. 122, Fig. 22.

*Thalassoma hardwicke* Smith 1953, p. 287, Pl. 53, Fig. 780.

Collected and observed on all areas of the reef at both high and low water. Common. (4)

*Thalassoma janseni* (Bleeker)

*Julis (Julis) Janseni* Bleeker 1856a, p. 56.

*Thalassoma janseni* de Beaufort 1940, p. 119; Munro 1955, p. 189, Pl. 37, Fig. 556.

One found in a pool on the south-western reef flat. (2)

*Thalassoma lunare* (Linné)

*Labrus lunaris* Linné 1758, p. 283.

*Thalassoma lunare* de Beaufort 1940, p. 133; Smith 1953, p. 287, Pl. 53, Fig. 777.

Outer reef flat. Common. (6)

*Thalassoma* sp. juv.

Several taken amongst coral on the inner reef flat. (6)

Genus *Hemigymnus* Günther, 1861b*Hemigymnus melapterus* (Bloch)

*Labrus melapterus* Bloch 1791, p. 137, Pl. 285.

*Hemigymnus melapterus* de Beaufort 1940, p. 145, Fig. 24; Smith 1953, p. 289, Fig. 788, Pl. 107, Fig. 788.

Reef front, outer reef flat, lagoon—at low tide; roaming about coral in all areas at high water. Common. (4, 7)

Genus *Labroides* Bleeker, 1851d*Labroides dimidiatus* (Valenciennes)

*Labrus latovittatus* Rüppell 1838, p. 7, Pl. 2, Fig. 2 (*nec* Lacépède).

*Cossyphus dimidiatus* (Valenciennes) Cuvier and Valenciennes 1839, pp. 136, 139.

*Labroides dimidiatus* de Beaufort 1940, p. 148, Fig. 25; Randall 1955d, p. 143;—1958, p. 329, Fig. 1.

Has been taken or observed at high water in all investigated coral areas. Commonest on the outer reef flat and reef front. (See Randall 1958 for habits of this species.) (4)

Genus *Labrichthys* Bleeker, 1854c*Labrichthys cyanotaenia* Bleeker

*Labrichthys cyanotaenia* Bleeker 1854c, p. 331; de Beaufort 1940, p. 153, Fig. 27.

Common in reef crest pools. (4, 7)

Genus *Halichoeres* Rüppell, 1838*Halichoeres nebulosus* (Valenciennes)

*Julis nebulosus* Cuvier and Valenciennes 1839, p. 461.

*Halichoeres daedalma* Jordan and Seale 1906, p. 301; Pl. 47, Fig. 2.

Found only in the reef crest pools and on the reef front. Not common. (4)



Genus *Guntheria* Bleeker, 1862a*Guntheria trimaculata* (Griffith)*Julis trimaculata* Griffith 1834, Pl. 45, Fig. 2.*Julis trimaculatus* Quoy and Gaimard 1834, p. 705, Pl. 20, Fig. 2.*Halichoeres trimaculatus* Jordan and Seale 1906, p. 301, Pl. 47, Fig. 1; de Beaufort 1940, p. 184.*Guntheria trimaculata* Whitley 1958, pp. 36, 37.

Amongst coral of the reef flat. Common. (6)

Genus *Pseudolabrus* Bleeker, 1862a*Pseudolabrus guntheri* Bleeker*Pseudolabrus Guntheri* Bleeker 1862b, p. 131.*Pseudolabrus guntheri* McCulloch 1913, p. 368, Pl. 17; —1927, p. 71, Pl. 30, Fig. 256a.

Amongst coral of the reef flat. Moderately common. (6)

Genus *Pseudojulis* Bleeker, 1862a*Pseudojulis trifasciatus* Weber*Pseudojulis trifasciatus* Weber 1913, p. 380; de Beaufort 1940, p. 175, Fig. 32.

One taken on the reef front. (4)

Genus *Stethojulis* Günther, 1861b*Stethojulis strigiventer* (Bennett)*Julis strigiventer* Bennett 1832, p. 184.*Julis (Halichoeres) Renardi* Bleeker 1851d, p. 253.*Stethojulis strigiventer* de Beaufort 1940, p. 163; Smith 1953, p. 291, Pl. 57, Fig. 801; Randall 1955e, p. 237.Common about all coral areas at high and low water. (Dr. M. C. Bleakly, 4). Randall (1955e) found that *S. renardi* was the adult male of *S. strigiventer*.*Stethojulis axillaris* (Quoy and Gaimard)*Julis axillaris* Quoy and Gaimard 1824, p. 272.*Stethojulis bandanensis* Jordan and Seale 1906, p. 297, Pl. 45, Fig. 2.*Stethojulis axillaris* de Beaufort 1940, p. 167, Fig. 28; Smith 1953, p. 291, Pl. 57, Fig. 800.

Moderately common in reef crest pools. (4)

## Family SCARIDAE. Parrotfishes

Genus *Scarus* Forskål, 1775*Scarus dubius* Bennett, E. T.*Scarus dubius* Bennett 1928, p. 37; Schultz 1958, p. 54, Pl. 10, A.*Callyodon dubius* Fowler and Bean 1928, p. 473.

A large population moves from lagoon to beachrock zone to feed with the flooding of the tide. Others occur amongst coral of the outer reef flat, reef crest pools, and reef front at low tide—concentrating about reef crest and outer areas of reef to feed at high water. (4, 7)

*Scarus fasciatus* Valenciennes*Scarus fasciatus* Cuvier and Valenciennes 1840, p. 222; Schultz 1958, p. 82, Pl. 15, D.*Callyodon fasciatus* Fowler and Bean 1928, p. 429; de Beaufort 1940, p. 306; Ogilby 1954, p. 83, Fig. 98.

Lagoon, and reef front (low tide); lagoon, reef front, reef crest, and reef flat (high tide). (4, 7)

*Scarus ghobban* Forskål*Scarus ghobban* Forskål 1775, p. 28.*Callyodon ghobban* de Beaufort 1940, p. 304; Smith 1956, p. 10, Pl. 43, H.Distribution similar to that of *S. fasciatus* except that lagoon population is negligible. Common. (4, 7)*Scarus globiceps* Valenciennes*Scarus globiceps* Cuvier and Valenciennes 1840, p. 179; Schultz 1958, p. 75, Pl. 14, C (*partim*).*Callyodon globiceps* Smith 1956, p. 14, Pl. 44, Fig. L; Smith 1959, p. 279, Pl. 44, Fig. L.

Reef crest pool. Not common. (4)

*Scarus microrhinos* Bleeker

*Scarus microrhinos* Bleeker 1854b, p. 200; Schultz 1958, p. 48, Fig. 4, Pl. 9, A (*partim*).  
*Callyodon microrhinos* Smith 1959, p. 273, Fig. 4.  
*Callyodon microrhinos* de Beaufort 1940, p. 273.

Outer reef flat. Common. (4)

*Scarus sordidus* Forskål

*Scarus sordidus* Forskål 1775, p. 30; Schultz 1958, p. 68, Fig. 11, Pls. 12, A, B (*partim*).  
*Callyodon sordidus* Fowler and Bean 1928, p. 398 (*partim*); de Beaufort 1940, p. 311 (*partim*);  
 Smith 1959, pp. 266, 269.

Taken and observed on the reef front. Uncommon. (4)

*Scarus vermiculatus* (Fowler and Bean)

*Callyodon vermiculatus* Fowler and Bean 1928, p. 472, Pl. 49; de Beaufort 1940, p. 282.  
*Scarus vermiculatus* Schultz 1958, p. 82, Pl. 16, A.

One taken on north-eastern reef crest at low tide. (4). A new record for Australia. Reg. No.: H409.

Genus *Chlorurus* Swainson, 1839*Chlorurus pulchellus* (Rüppell)

*Scarus pulchellus* Rüppell 1838, p. 25, Pl. 8, Fig. 3.  
*Callyodon pulchellus* Fowler and Bean 1928, p. 423; de Beaufort 1940, p. 277.  
*Cetoscarus pulchellus* Smith 1956, p. 17, Pl. 43, Fig. E.  
*Chlorurus pulchellus* Schultz 1958, p. 28, Pls. 1, C, 6, C.

One taken on the outer reef flat at low tide. (4)

## Family PARAPERCIDAE. Sand Divers

Genus *Parapercis* Bleeker, 1863a*Parapercis cylindrica* (Bloch)

*Sciaena cylindrica* Bloch 1792, p. 42, Pl. 299, Fig. 1.  
*Parapercis cylindrica* Martin and Montalban 1935, p. 216, Pl. 1, Fig. 1; de Beaufort and Chapman 1951, p. 19.

On sandy bottoms about coral, in all such areas investigated. Common. (4)

*Parapercis hexophthalma* (Cuvier)

*Percis cylindrica* Rüppell 1828, p. 19 (*nec* Bloch).  
*Percis hexophthalma* Cuvier and Valenciennes 1829a, pp. 202, 271.  
*Parapercis hexophthalma* de Beaufort and Chapman 1951, p. 24; Smith 1953, p. 177, Pls. 13, 104, Figs. 380.

Collected on the north-western outer reef flat and observed on the inner eastern edge of the lagoon. Rare. (4)

## Family TRICHONOTIDAE

Genus *Linnichthys* Waite, 1904*Linnichthys fasciatus* Waite

*Linnichthys fasciatus* Waite 1904, p. 178, Pl. 23, Fig. 4; Schultz 1943, p. 261 (key only).

Collected on the outer reef flat. Not common. (4)

Genus *Squamiceedia* Rendahl, 1921*Squamiceedia obtusa* Rendahl

*Squamiceedia obtusa* Rendahl 1921, p. 20, Figs. 4-6; Schultz 1943, p. 262 (key only); Whitley 1956, p. 260.

Amongst coral on the inner reef flat. Not common. (4)

## Suborder BLENNIOIDEA

Family BLENNIIDAE. Blennies

Genus *Cirripectus* Swainson, 1839*Cirripectus variolosus* (Valenciennes)*Salarias variolosus* Cuvier and Valenciennes 1836, p. 317, Pl. 330.*Cirripectus variolosus* Herre 1939, p. 343; de Beaufort and Chapman 1951, p. 249.

Under stones and dead coral on all reef flat areas. Moderately common. (4)

Genus *Atrosalarias* Whitley, 1933*Atrosalarias fuscus* (Rüppell)*Salarias fuscus* Rüppell 1838, p. 135, Pl. 32, Fig. 2; Herre 1939, p. 348.*Atrosalarias phaiosoma* Whitley 1933, p. 93.

All reef areas investigated. Common. (4)

Genus *Salarias* Cuvier, 1817*Salarias chrysospilos* Bleeker*Salarias chrysospilos* Bleeker 1857a, p. 66; de Beaufort and Chapman 1951, p. 307.

Found only on the reef front. Rare. (4)

*Salarias edentulus* (Bloch)*Blennius edentulus* Bloch and Schneider 1801, p. 172.*Salarias rivulatus* McCulloch and McNeill 1918, p. 15, Pl. 3, Figs. 3, 4.*Salarias edentulus* Herre 1939, p. 357; de Beaufort and Chapman 1951, p. 328.

Under rocks and dead coral on the beachrock and inner reef flat. Abundant. (4)

*Salarias fasciatus* (Bloch)*Blennius fasciatus* Bloch 1786, p. 110, Pl. 162, Fig. 1.*Salarias fasciatus* Herre 1939, p. 349; de Beaufort and Chapman 1951, p. 315; Munro 1955, p. 204, Pl. 40, Fig. 604.

Amongst coral in all areas. Moderately common. (6)

*Salarias meleagris* Valenciennes*Salarias meleagris* Cuvier and Valenciennes 1836, p. 332; Günther 1877, p. 208, Pl. 116, Fig. D; McCulloch and McNeill 1918, p. 16; de Beaufort and Chapman 1951, p. 307.As *S. edentulus*. Abundant. (4)*Salarias sinuosus* Snyder*Salarias sinuosus* Snyder 1908, p. 109; de Beaufort and Chapman 1951, p. 298, Fig. 48.

Found only on the reef front. Rare. (4)

Genus *Ecsenius* McCulloch, 1923b*Ecsenius frontalis* (Valenciennes)*Salarias frontalis* Cuvier and Valenciennes 1836, p. 328.*Ecsenius frontalis* de Beaufort and Chapman 1951, p. 353, Fig. 50.

One in a reef crest pool. (4)

*Ecsenius mandibularis* McCulloch*Ecsenius mandibularis* McCulloch 1923b, p. 122, Pl. 15, Figs. 1, 2.

Collected amongst coral on the inner and outer reef flat. Moderately common. (6)

Genus *Petroscirtes* Rüppell, 1828*Petroscirtes eretes* Jordan and Seale*Petroscirtes eretes* Jordan and Seale 1905, p. 801, Fig. 19; Herre 1939, p. 333; de Beaufort and Chapman 1951, p. 370.

Amongst coral on the inner reef flat. Rare. (4)

*Petroscirtes grammistes* (Valenciennes)*Blennechis grammistes* Cuvier and Valenciennes 1836, p. 284.*Petroscirtes grammistes* de Beaufort and Chapman 1951, p. 364, Fig. 51.

Amongst coral on the inner and outer reef flat. Moderately common. (4)

*Petroscirtes mitratus* Rüppell

*Petroscirtes mitratus* Rüppell 1828, p. 111, Pl. 28, Fig. 1; de Beaufort and Chapman 1951, p. 367.  
Amongst coral on the inner reef flat. Rare. (4)

*Petroscirtes taeniatus* (Quoy and Gaimard)

*Aspidontus taeniatus* Quoy and Gaimard 1834, p. 719, Pl. 19, Fig. 4.  
*Petroscirtes azureus* Jordan and Seale 1906, p. 432, Fig. 109.  
*Petroscirtes taeniatus* de Beaufort and Chapman 1951, p. 363.  
Collected in a reef crest pool. Rare. (4)

*Petroscirtes tapeinosoma* Bleeker

*Petroscirtes tapeinosoma* Bleeker 1857a, p. 64.  
*Petroscirtes tapeinosoma* Günther 1877, p. 195, Pl. 115, Fig. D; de Beaufort and Chapman 1951, p. 362.  
Amongst coral on the inner reef flat. Moderately common. (4)

*Petroscirtes temmincki* Bleeker

*Petroscirtes Temminckii* Bleeker 1851d, p. 243.  
*Petroscirtes temmincki* Herre 1939, p. 337; de Beaufort and Chapman 1951, p. 372.  
Amongst coral on the inner reef flat. Rare. (4)

*Petroscirtes viperidens* (De Vis)

*Salarias viperidens* De Vis 1884, p. 697.  
*Petroscirtes viperidens* Whitley 1932a, p. 299, Fig. 5.  
Amongst coral on the inner reef flat. Rare. (4)

Genus *Enchelyurus* Peters, 1868*Enchelyurus kraussi* (Klunzinger)

*Petroscirtes Kraussi* Klunzinger 1871, p. 497.  
*Petroscirtes kraussi* de Beaufort and Chapman 1951, p. 378.  
*Enchelyurus kraussi* Haysom 1957, p. 143, Fig. 2.  
Two from amongst coral on the outer reef flat. Rare. (4)

*Enchelyurus caeruleopunctatus* Herre

*Enchelyurus caeruleo-punctatus* Herre 1939, p. 340, Pl. 1.  
One from the reef front. Rare. (4). A new record for Australia. Reg. No.: H410.

## Family CONGROGADIDAE. Dagger fishes

Genus *Congrogadus* Günther, 1862*Congrogadus subducens* (Richardson)

*Machaerium subducens* Richardson 1843, p. 175, Pl. 6.  
*Congrogadus subducens* de Beaufort and Chapman 1951, p. 384, Fig. 55.  
Amongst coral in all areas. Common. (4)

Genus *Haliophis* Rüppell, 1828*Haliophis malayanus* Weber

*Haliophis malayanus* Weber 1909, p. 145; de Beaufort and Chapman 1951, p. 386, Fig. 56.  
As *C. subducens*. Common. (4)

## Family BROTLIDAE

Genus *Dinematichthys* Bleeker, 1855a*Dinematichthys iluocoeteoides* Bleeker

*Dinematichthys iluocoeteoides* Bleeker 1855a, p. 319; de Beaufort and Chapman 1951, p. 438, Fig. 79.  
Found deep in coral clumps in all areas from the outer reef flat outwards. Common. (4)

## Family PHOLIDICHTHYIDAE

Genus *Gunellichthys* Bleeker, 1858a*Gunellichthys pleurotaenia* Bleeker*Gunellichthys pleurotaenia* Bleeker 1858a, p. 10; de Beaufort and Chapman 1951, p. 448, Fig. 86.

Collected from sand in beachrock pools and the inshore channel. Rare. (4). A new record for Australia. Reg. No.: H411.

## Family TRIPTERYGIIDAE.\* Weed-fishes

Genus *Norfolkia* Fowler, 1953*Norfolkia squamiceps* (McCulloch and Waite)*Gillias squamiceps* McCulloch and Waite 1916, p. 449, Pl. 41, Fig. 1.*Norfolkia squamiceps* Whitley 1956, p. 261.

From coral clumps on the inner reef flat. Moderately common. (6)

Genus *Vauclusella* Whitley, 1931*Vauclusella atrogulare* (Günther)*Tripterygium atrogulare* Günther 1873, p. 267 (91).

From coral on inner reef flat. Moderately common. (6)

## Suborder CALLIONYMOIDEA

Family CALLIONYMIDAE. Dragonets

Genus *Dicallionymus* Fowler, 1941b*Dicallionymus goramensis* (Bleeker)*Callionymus goramensis* Bleeker 1858b, p. 214.*Diplogrammus goramensis* de Beaufort and Chapman 1951, p. 69, Fig. 13.

Several from sand in reef crest pools. (4)

## Suborder SIGANOIDEA

Family SIGANIDAE. Spinefeet

Genus *Siganus* Forskål, 1775*Siganus capricornensis* Whitley*Siganus capricornensis* Whitley 1926, p. 231, Pl. 33.

One juvenile collected on inner reef flat January 1956 (Coll. Mr. H. C. Cogger). (6)

*Siganus chrysospilos* (Bleeker)*Amphacanthus chrysospilos* Bleeker 1852a, p. 66.*Teuthis hexagonata* Herre and Montalban 1928a, p. 162, Pl. 2, Fig. 1.*Siganus chrysospilos* de Beaufort and Chapman 1951, p. 118.

Deeper outer reef flat areas. (7)

*Siganus doliatus* Cuvier*Siganus doliatus* (Cuvier) Guerin-Meneville 1830, Pl. 36, Fig. 1; Fowler and Bean 1929, p. 324.*Amphacanthus doliatus* (Valenciennes) Cuvier and Valenciennes 1835, p. 132.*Teuthis doliata* Herre and Montalban 1928a, p. 173, Pl. 2, Fig. 3.

Reef front. (4)

*Note:* As most authors fail to mention the presence of ocular and shoulder bars in this species the following observations on fresh material are included.

Colour in life: General colour, olivaceous dorsally merging to slate white ventrally. On back, maze of undulating lemon yellow and slate blue lines, alternating with each other; often converging dorsally, but arranging themselves into a more or less vertical pattern on sides; disappearing on lower surface. Beneath soft dorsal, lines becoming roughly horizontal, running on to caudal peduncle. On head, maze pattern more complex, often lines constricting into dots.

\*Australian genera may be keyed from Scott (Strasbourg 1956).

Superimposed on this pattern a seal brown bar from chin through eye meeting across inter-orbital region, and another running obliquely from pectoral axil towards sixth dorsal spine, but terminating from its base by distance about equal to width of eye. Dorsal fin rays and spines lemon yellow, membrane bluish. Ventral fin rays and spines blue, membrane yellowish. Caudal yellow to olivaceous. Pectorals yellow to hyaline. Ventrals bluish. Iris pale yellow. (4, 7)

*Siganus lineatus* (Valenciennes)

*Amphacanthus lineatus* Cuvier and Valenciennes 1835, p. 95 (130), Pl. 286.

*Siganus lineatus* Fowler and Bean 1929, p. 319; Ogilby 1954, Fig. 113.

Resident in lagoon, venturing to all areas of reef flat with rising tide. (7)

*Siganus oramin* (Bloch and Schneider)

*Amphacanthus guttatus* var. *oramin* Bloch and Schneider 1801, p. 207, Pl. 48.

*Teuthis oramin* Herre and Montalban 1928a, p. 165, Pl. 5, Fig. 1.

*Siganus oramin* Fowler and Bean 1929, p. 307.

*Siganus fuscescens* Fowler and Bean 1929, p. 314 (*nec* Houuttuyn).

Distribution similar to that of *S. lineatus*. (4, 7)

*Siganus* (*Lo*) *vulpinus* (Schlegel and Müller)

*Amphacanthus vulpinus* Schlegel and Müller 1844, p. 12.

*Lo vulpinus* Herre and Montalban 1928a, p. 182, Pl. 6.

*Siganus* (*Lo*) *vulpinus* de Beaufort and Chapman 1951, p. 98, Fig. 20.

*Note*: None taken, but this distinctive species often seen about reef front during underwater surveys. (4, 7)

### Suborder ACANTHUROIDEA

#### Family ZANCLIDAE. Moorish idol

##### Genus *Zanclus* (Cuvier) Cuvier and Valenciennes, 1831

*Zanclus canescens* (Linné)

*Chaetodon canescens* Linné 1758, p. 272.

*Chaetodon cornutus* Linné 1758, p. 273.

*Zanclus canescens* Fowler and Bean 1929, p. 196; Weber and de Beaufort 1936, p. 172, Fig. 45.

*Zanclus cornutus* Weber and de Beaufort 1936, p. 170, Figs. 43, 44; Randall 1955, p. 169.

Reef front.

*Note*: The single specimen secured (65 mm in standard length) was taken on the inner reef flat. It carried a recurved spine at the angles of the mouth but lacked any sign of inter-orbital protuberances. Following Randall (1955d), who supported his decision with convincing circumstantial evidence, we regard *Z. cornutus* (L.) and *Z. canescens* (L.) as synonymous; preferring, however, to give precedence to *Z. canescens* by page priority. (4, 7)

#### Family ACANTHURIDAE. Surgeon fishes

##### Genus *Ctenochaetus* Gill, 1885

*Ctenochaetus strigosus* (Bennett)

*Acanthurus strigosus* Bennett, F. T. 1828, p. 41.

*Ctenochaetus strigosus* de Beaufort and Chapman 1951, p. 128, Fig. 24; Smith 1953, p. 240, Pl. 33, Fig. 614; Randall 1955b, p. 159, Pl. 1, Figs. A-C, Pl. 2, Fig. 1, Figs. 1B, 3A.

One taken on the outer reef flat. Underwater observations indicated that this species was not common. (4)

##### Genus *Acanthurus* Forskål, 1775

*Acanthurus dussumieri* Valenciennes

*Acanthurus Dussumieri* Cuvier and Valenciennes 1835, p. 201.

*Teuthis grammoptilus* McCulloch 1918, p. 92, Pl. 28.

*Acanthurus dussumieri* de Beaufort and Chapman 1951, p. 155; Randall 1956, p. 213, Figs. 1h, 2w, Pl. 3.

Reef crest pools. Initially, *A. dussumieri*, *A. mata* and *A. xanthopterus* were confused and consequently the exact distribution of each species has not been recorded. (4)

*Acanthurus gahhm* (Forskål)*Chaetodon nigro-fuscus* var. *Gahhm* Forskål 1775, p. 64.*Acanthurus gahhm* Randall 1956, p. 207, Pl. 3, Fig. 2s.

Collected on the reef front. Rare. (4). A new record for Australia. Reg. No.: H412.

*Acanthurus lineatus* (Linné)*Chaetodon lineatus* Linné 1758, p. 274.*Acanthurus lineatus* Randall 1956, p. 193, Pl. 1, Figs. 1e, 2i.

Not collected but occasionally observed about "negro heads" on the reef front and outer slope. (4)

*Acanthurus mata* (Cuvier)*Chaetodon meta* Cuvier 1829, p. 224.*Acanthurus mata* Randall 1956, p. 218, Pl. 3, Figs. 1d, 2y.Amongst coral on all the reef flat areas collected: Moderately common (but see *A. dussumieri*). (4)*Acanthurus nigrofuscus* (Forskål)*Chaetodon nigro-fuscus* Forskål 1775, p. 64.*Acanthurus nigrofuscus* Randall 1956, p. 190, Pl. 1, Fig. 2h.

Taken on the reef front. Rare. (4)

*Acanthurus triostegus* (Linné)*Chaetodon triostegus* Linné 1758, p. 274.*Acanthurus triostegus* de Beaufort and Chapman 1951, p. 144; Randall 1956, p. 172, Figs. 1a, 2a, 3, 4.

Collected on inner reef flat. Large shoals observed in lagoon outflow area on the south-eastern portion of the reef. Not common. (4)

*Acanthurus xanthopterus* Valenciennes*Acanthurus xanthopterus* Cuvier and Valenciennes 1835, p. 215; Randall 1956, p. 215, Pl. 3, Fig. 2x.*Acanthurus matoides* de Beaufort and Chapman 1951, p. 156.From coral in all reef flat areas investigated. Moderately common (but see *A. dussumieri*). (4)Genus *Zebrasoma* Swainson, 1839*Zebrasoma rostratum* (Günther)*Acanthurus rostratus* Günther 1875, p. 117, Pl. 66, Fig. B.*Zebrasoma rostratum* Randall 1955c, p. 403, Figs. 1d, 6.

One collected on the reef front. (4). A new record for Australia. Reg. No.: H413.

*Zebrasoma veliferum* (Bloch)*Acanthurus velifer* Bloch 1795, p. 106, Pl. 427, Fig. 1.*Zebrasoma veliferum* de Beaufort and Chapman, 1951, p. 167, Fig. 28; Randall 1955c, p. 398, Figs. 1a, 2, 3, Pl. 1.

Juveniles collected from coral at Shark Bay, and adults from coral on the outer reef flat outwards. Moderately common. (4)

Genus *Naso* Lacépède, 1802a*Naso annulatus* (Quoy and Gaimard)*Priodon annulatus* Quoy and Gaimard 1824, p. 377.*Naso annulatus* Fowler and Bean 1929, p. 271, Fig. 18; de Beaufort and Chapman 1951, p. 177.

Reported in fish trap catch prior to 1956. Not seen by us. (1, 5)

*Naso brevirostris* (Valenciennes)*Naseus brevirostris* Cuvier and Valenciennes 1835, p. 277, Pl. 291.*Naso brevirostris* Fowler and Bean 1929, p. 268, Fig. 17; de Beaufort and Chapman 1951, p. 175.

Juveniles collected from coral on the inner reef flat, and adults taken from the outer reef flat and reef front. Moderately common. (4)

*Naso unicornis* (Forskål)*Chaetodon unicornis* Forskål 1775, p. 63.*Naso unicornis* Fowler and Bean 1929, p. 264, Fig. 16; de Beaufort and Chapman 1951, p. 173, Fig. 29.Data as with *N. brevirostris*. Moderately common. (4)

## Suborder SCOMBROIDEA

Family THUNNIDAE. Tunas, bonitos

Genus *Euthynnus* (Lütken) Jordan and Gilbert, 1883*Euthynnus alleteratus affinis* (Cantor)*Scomber alleteratus* Rafinesque 1810a, p. 46.*Scomber alleteratus* Rafinesque, *loc. cit.*, Pl. 2, Fig. 2.*Thynnus affinis* Cantor 1850, p. 1088.*Euthynnus alleteratus affinis* de Beaufort and Chapman 1951, p. 218, Fig. 38.*Euthynnus alleteratus* Smith, 1953, p. 298, Pl. 65, Fig. 830.*Euthynnus affinis* Munro 1955, p. 219, Pl. 43, Fig. 646.

Open waters; occasionally coming on to reef flat. (7)

Genus *Kishinoella* Jordan and Hubbs, 1925*Kishinoella tonggol* (Bleeker)*Thynnus tonggol* Bleeker 1851b, p. 356.*Kishinoella tonggol* Serventy 1942, p. 101, Pls. 3, 4, 5; Munro 1955, p. 220, Pl. 43, Fig. 648.*Thunnus tonggol* de Beaufort and Chapman 1951, p. 225.

Often taken while trolling in waters outside the reef. (7)

Family SCOMBEROMORIDAE. Spanish mackerels

Genus *Scomberomorus* Lacépède, 1802a*Scomberomorus commersoni* (Lacépède)*Scomber commerson* Lacépède 1800, pp. 598, 600, Pl. 20, Fig. 1.*Scomberomorus (Cybium) commerson* Munro 1943, p. 74, Pl. 6, Fig. B, Pl. 8, Fig. 3.*Scomberomorus commersoni* de Beaufort and Chapman 1951, p. 230.

Open waters. (1, 5)

## Suborder GOBIOIDEA

Family GOBIIDAE. Gobies

Subfamily Gobiodontinae

Genus *Paragobiodon* Bleeker, 1873*Paragobiodon echinocephalus* (Rüppell)*Gobius echinocephalus* Rüppell 1828, p. 136, Pl. 34, Fig. 3.*Paragobiodon echinocephalus* Koumans 1953, p. 3, Fig. 1.

From living coral on the entire reef flat. Moderately common. (4)

Genus *Gobiodon* Bleeker, 1856e*Gobiodon citrinus* (Rüppell)*Gobius citrinus* Rüppell 1838, p. 139, Pl. 32, Fig. 4.*Gobiodon citrinus* McCulloch and Ogilby 1919, p. 212; Koumans 1953, p. 11; Munro 1955, p. 233, Pl. 45, Fig. 680.

From living coral clumps on the outer reef flat. Moderately common. (4)

*Gobiodon histrio* (Valenciennes)*Gobius histrio* Cuvier and Valenciennes 1837, p. 132, Pl. 347.*Gobiodon verticalis* McCulloch and Ogilby 1919, p. 208, Pl. 32, Fig. 2.*Gobiodon histrio* Koumans 1953, p. 7.

From living coral clumps on the inner reef flat. Moderately common. (4)



*Gobiodon quinquestrigatus* (Valenciennes)*Gobius quinquestrigatus* Cuvier and Valenciennes 1837, p. 134.*Gobiodon quinquestrigatus* McCulloch and Ogilby 1919, p. 210, Fig. 4; Koumans 1953, p. 10, Fig. 2.

From living coral clumps on the inner reef flat. Not common. (4)

*Gobiodon quinquestrigatus* var. *ceramensis* (Bleeker)*Gobius ceramensis* Bleeker 1852f, p. 704.*Gobiodon quinquestrigatus* var. *ceramensis* McCulloch and Ogilby 1919, p. 211.

From living coral in all areas investigated. Common. (4)

## Subfamily Gobiinae

Genus *Acentrogobius* Bleeker, 1874*Acentrogobius ornatus* (Rüppell)*Gobius ornatus* Rüppell 1828, p. 135; McCulloch and Ogilby 1919, p. 227, Pl. 33, Fig. 2.*Acentrogobius ornatus* Koumans 1953, p. 71; Munro 1955, p. 241, Pl. 46, Fig. 700.

From sand in beachrock pools, in the inshore channels, and the entire inner reef flat. The characteristic fish of these sandy areas, dominating them. (Dr. M. C. Bleakly, 4)

Genus *Callogobius* Bleeker, 1874*Callogobius hasseltii* (Bleeker)*Eleotris Hasseltii* Bleeker 1851a, p. 253, Fig. 13.*Callogobius hasseltii* McCulloch and Ogilby 1919, p. 217; Koumans 1953, p. 98, Fig. 20.*Callogobius hasseltii* var. *mucosus* McCulloch and Ogilby 1919, p. 217, Pl. 32, Fig. 4.Distribution and abundance as in *A. ornatus* except that *C. hasseltii* ranges to the outer reef flat. (6)Genus *Quisquilius* Jordan and Evermann, 1904*Quisquilius macrophthalmus* Weber*Quisquilius macrophthalmus* Weber 1909, p. 156; Koumans 1953, p. 132, Fig. 31.

From coral on inner and outer reef flat. Moderately common. (4)

Genus *Amblygobius* Bleeker, 1874*Amblygobius albimaculatus* (Rüppell)*Gobius albimaculatus* Rüppell 1828, p. 135.*Amblygobius phalaena* McCulloch and Ogilby 1919, p. 253, Pl. 35, Fig. 1.*Amblygobius albimaculatus* Koumans 1953, p. 141, Fig. 33.

Burrowing in sand and under rocks and coral—beachrock pools, inshore channel, inner reef flat. Common. (4)

*Amblygobius bynoensis* (Richardson)*Gobius bynoensis* Richardson 1848 (1844-48), p. 1, Pl. 1, Figs. 1, 2.*Amblygobius bynoensis* McCulloch and Ogilby 1919, p. 251, Pl. 35, Fig. 2; Koumans 1953, p. 139.

Amongst coral on inner reef flat. Rare. (4)

Genus *Zonogobius* Bleeker, 1874*Zonogobius nuchifasciatus* (Günther)*Gobius nuchifasciatus* Günther 1873, p. 266 (90).*Zonogobius nuchifasciatus* McCulloch and Ogilby 1919, p. 242.

Amongst coral on the inner reef flat. Common. (4)

Genus *Ctenogobius* Gill, 1858*Ctenogobius criniger* (Valenciennes)? *Gobius nebulosus* Forskål 1775, p. 24.*Gobius criniger* Cuvier and Valenciennes 1837, p. 82.*Rhinogobius nebulosus* McCulloch and Ogilby 1919, p. 245.*Ctenogobius criniger* Koumans 1953, p. 178, Fig. 44.

One taken on north-eastern reef front. (4)

Genus *Bathygobius* Bleeker, 1878*Bathygobius fuscus* (Rüppell)*Gobius fuscus* Rüppell 1828, p. 137.*Mapo fuscus* McCulloch and Ogilby 1919, p. 231, Pl. 33, Fig. 3.*Bathygobius fuscus* Koumans 1953, p. 187, Fig. 45.Distribution as for *Acentrogobius ornatus*. Abundant. (4)

## Family ELEOTRIDAE. Gudgeons

Genus *Asterropteryx* Rüppell, 1828*Asterropteryx semipunctatus* Rüppell*Asterropteryx semipunctatus* Rüppell 1828, p. 138, Pl. 34, Fig. 4; Koumans 1953, p. 290, Fig. 73.*Asterropteryx semipunctatus* McCulloch and Ogilby 1919, p. 273.Distribution as for *Acentrogobius ornatus*. Abundant. (6)Genus *Eviota* Jenkins, 1904*Eviota viridis* (Waite)*Allogobius viridis* Waite 1904, p. 177, Pl. 23, Fig. 3.*Eviota viridis* McCulloch 1913, p. 386.

From coral in all reef areas investigated. Very common. (6)

Genus *Eleotriodes* Bleeker, 1858b*Eleotriodes longipinnis* (Bennett)*Eleotris longipinnis* Lay and Bennett 1839, p. 64, Pl. 20, Fig. 3.*Valenciennea longipinnis* McCulloch and Ogilby 1919, p. 263.*Eleotriodes longipinnis* Koumans 1953, p. 336.

From burrows in sand of the beachrock pools, inshore channel, and inner reef flat. Common. (4)

*Eleotriodes muralis* (Quoy and Gaimard)*Eleotris muralis* (Quoy and Gaimard) Cuvier and Valenciennes 1837, p. 253, Pl. 357.*Valenciennea muralis* McCulloch and Ogilby 1919, p. 261, Pl. 37, Fig. 4.*Eleotriodes muralis* Koumans 1953, p. 337.Distribution as *E. longipinnis*. Not common. (4)Genus *Ptereleotris* Gill, 1864d*Ptereleotris microlepis* (Bleeker)*Eleotris microlepis* Bleeker 1856d, p. 102.*Ptereleotris microlepis* McCulloch and Ogilby 1919, p. 258, Pl. 37, Fig. 1; Koumans 1953, p. 367, Fig. 91.

One small school taken while sheltering near a dead coral on the inner reef flat. (4)

## Suborder COTTOIDEA

## Family SCORPAENIDAE

## Subfamily Pteroinae. Butterfly cods, zebrafishes

Genus *Dendrochirus* Swainson, 1839*Dendrochirus zebra* (Quoy and Gaimard)*Pterois zebra* Quoy and Gaimard 1824, p. 329.*Dendrochirus zebra* Smith 1957b, p. 81, Pl. 6, Fig. C.

About coral in many areas, but particularly inner reef flat. (4, 7)

Genus *Pterois* (Cuvier) Oken, 1817*Pterois volitans* (Linné)*Gasterosteus volitans* Linné 1758, p. 296.*Pterois volitans* Schultz 1943, pp. 170, 172; Herre 1953, p. 568 (for bibliography); Smith 1957b, p. 76, Pl. 5, Figs. A-D.

One in a reef crest pool. (4)

## Subfamily Scorpaeninae. Scorpion-fishes

Genus *Scorpaenopsis* Heckel, 1840*Scorpaenopsis gibbosus* (Schneider)*Scorpaena gibbosa* Bloch and Schneider 1801, p. 192, Pl. 44.*Scorpaenopsis gibbosa* Herre 1953, p. 571 (for bibliography); Smith 1957a, p. 59, Pl. 4, Fig. E.

Reef crest pools and Wistari reef flat. Not common. (4)

Genus *Scorpaenodes* Bleeker, 1857d*Scorpaenodes guamensis* (Quoy and Gaimard)*Scorpaena guamensis* Quoy and Gaimard 1824, p. 326.*Scorpaenodes guamensis* Herre 1953, p. 569 (for bibliography); Smith 1957a, p. 65, Pl. 1, Figs. C, D, Fig. 5.

Amongst coral on the outer reef flat. Not common. (4)

Genus *Sebastapistes* Gill, 1878*Sebastapistes bynoensis* (Richardson)*Scorpaena bynoensis* Richardson 1845 (1844-48), p. 22, Pl. 14, Figs. 3-5.*Sebastapistes bynoensis* Herre 1951, p. 406.

From coral on the entire reef flat. Not common. (4)

## Family SYNANCEIIDAE. Stonefishes

Genus *Synanceja* (Bloch) Bloch and Schneider, 1801? *Synanceja trachynis* Richardson*Synanceia trachynis* Richardson 1842, p. 385.*Synanceja trachynis* Whitley 1930a, p. 25; --- 1932a, p. 306, Pl. 4, Figs. 1, 2.*Note:* One stonefish was taken in the arrowhead fish trap by Grant and Stephenson. It was most probably *S. trachynis*, the typical eastern Australian form.It is a common misconception—stimulated by popular writings—that the stonefish is a characteristic member of the coral associating fauna of the Great Barrier Reefs. The authors never saw one at Heron I. or surrounding reefs; the several fishes hopefully brought by tourists to the marine laboratory for confirmation were usually *Scorpaenopsis gibbosus*. Permanent residents of the island say they are extremely rare; in fact, the stonefish on display at the tourist centre was brought over from the mainland.The nature of the camouflage of the stonefish fits it for simulating weed-covered or encrusted rocks. Its poor swimming ability restricts it to sluggish water habitats. In Queensland they are rather common about areas of mud precipitation, e.g. estuaries, and the mud flats of Moreton Bay; the mud settles on the animal completing the camouflage. Where coral reef areas contain a suitable substrate they could also be expected to be found, but nothing would appear more out of harmony than a stonefish on Heron I., or probably, for that matter, the majority of the Great Barrier Reefs. Whitley (1932a) found one beside a block of live coral in the moat at Low Isles but it is pertinent that it was "collected on the reef *near the mangroves*" (italics ours). Mangroves are found on those Barrier Reef islands close to the Queensland mainland where the waters are laden with mud from the eastern seaboard rivers.

## Family PLATYCEPHALIDAE. Flatheads

Genus *Insidiator* Jordan and Snyder, 1901a*Insidiator bosschei* (Bleeker)*Platycephalus Bosschei* Bleeker 1860a, p. 140 (mis-spelt "Bosscheis"); --- 1878, Pl. 419, Figs. 3, 3a.*Insidiator bosschei* McCulloch 1914a, p. 139.

Sandy areas of inner reef flat. Very uncommon. (4, 7)

Genus *Platycephalus* Bloch, 1795*Platycephalus indicus* (Linné)*Callionymus indicus* Linné 1758, p. 250.*Platycephalus indicus* Herre 1953, p. 580 (for bibliography).*Thysanophrys indicus* Munro 1955, p. 253, Pl. 48, Fig. 735.

Only taken in fish trap. Apparently rare. (1, 5, 7)

## Order XENOPTERYGII

Family GOBIESOCIDAE. Clingfishes

Genus *Lepadichthys* Waite, 1904*Lepadichthys frenatus* Waite*Lepadichthys frenatus* Waite 1904, p. 180, Pl. 24, Fig. 2.

Taken clinging to coral boulders on the reef crest of both Heron I. and Wistari reef. (4)

## Order PLEURONECTIFORMES

Family BOTHIDAE. Flounders

Genus *Bothus* Rafinesque, 1810a*Bothus pantherinus* (Rüppell)*Rhombus pantherinus* Rüppell 1828, p. 121, Pl. 3, Fig. 1.*Bothus pantherinus* Norman 1926, p. 252; Smith 1953, p. 160, Fig. 317.*Bothus (Platophrys) pantherinus* Weber and de Beaufort 1929, p. 123.

Taken in fish trap (uncommon). (7)

Family SOLEIDAE. Soles

Genus *Pardachirus* Günther, 1862*Pardachirus hedleyi* Ogilby*Pardachirus hedleyi* Ogilby 1916b, p. 144, Pl. 17.

One from sand on the inner reef flat. (4)

*Pardachirus pavoninus* (Lacépède)*Achirus pavoninus* Lacépède 1802b, pp. 658, 661.*Pardachirus pavoninus* Ogilby 1916b, p. 142, Pl. 16; Weber and de Beaufort 1929, p. 165, Fig. 46.

One from sand in a reef crest pool. (4)

## Order ECHENEIFORMES

Family ECHENEIDAE. Suckerfishes, remoras

Genus *Echeneis* Linné, 1758*Echeneis naucrates* Linné*Echeneis naucrates* Linné 1758, p. 261; Smith 1953, p. 342, Fig. 949; Munro 1955, p. 268, Pl. 52, Fig. 779.*Leptecheneis naucrates* Fowler 1928, p. 420, Fig. 66.

Open waters. (7)

## Order TETRAODONTIFORMES

Suborder BALISTOIDEA

Family BALISTIDAE. Triggerfishes

Genus *Abalistes* Jordan and Seale, 1906*Abalistes stellaris* (Schneider)*Balistes stellaris* Bloch and Schneider 1801, p. 476; Lacépède 1799, pp. 333, 350, Pl. 15, Fig. 1 (ineligible).*Abalistes stellaris* Herre 1924, p. 445; Smith 1953, p. 407, Pl. 89, Fig. 1156; Munro 1955, p. 270, Pl. 53, Fig. 785.

One adult angled from 25 fm to north-west of Heron I. (7)

Genus *Balistes* Linné, 1758*Balistes capistratus* Shaw*Balistes capistratus* Shaw 1804, p. 417.*Sufflamen capistratus* Smith 1953, p. 408, Pl. 90, Fig. 1162.

One angled from 20 fm off south-east of Heron I. (4)

*Balistes chrysopterus* Schneider

- Balistes niger* Park 1797, p. 37 (preoccupied).  
*Balistes chrysopterus* Bloch and Schneider 1801, p. 466; Herre 1924, p. 429.  
*Hemibalistes chrysoptera* Smith 1953, p. 409, Pl. 90, Fig. 1164.  
 North-eastern reef front. Very uncommon. (4)

Genus *Balistapus* Tilesius, 1820*Balistapus aculeatus* (Linné)

- Balistes aculeatus* Linné 1758, p. 328.  
*Balistapus aculeatus* Herre 1924, p. 440.  
*Rhinecanthus aculeatus* Smith 1953, p. 410, Pl. 91, Fig. 1169.  
 Collected near coral on the entire reef flat. Not common. (4)

*Balistapus rectangulus* (Schneider)

- Balistes rectangulus* Bloch and Schneider 1801, p. 465.  
*Balistapus rectangulus* Herre 1924, p. 442.  
*Rhinecanthus rectangulus* Smith 1953, p. 410, Pl. 91, Fig. 1170.  
 As *B. aculeatus*. Not common. (4)

## Family ALUTERIDAE

Genus *Osbeckia* Jordan and Evermann, 1896*Osbeckia scripta* (Forster)

- Balistes scriptus* Forster 1771, p. 331 (on Osbeck).  
*Osbeckia scripta* Herre 1924, p. 466; Smith 1953, p. 406, Pl. 89, Fig. 1153.  
 One in fish trap. (1)

## Family MONACANTHIDAE. Filefishes

Genus *Oxymonacanthus* Bleeker, 1866a*Oxymonacanthus longirostris* (Schneider)

- Balistes hispidus* var. *longirostris* Bloch and Schneider 1801, p. 464.  
*Oxymonacanthus longirostris* Herre 1924, p. 463, Pl. 2, Fig. 3.  
 From coral clumps outer zone of inner reef flat and outer reef flat. Common. (4)

Genus *Pervagor*, Whitley 1930b*Pervagor melanocephalus* (Bleeker)

- Monacanthus melanocephalus* Bleeker 1853d, p. 95.  
*Stephanolepis melanocephalus* Herre 1924, p. 456.  
*Pervagor melanocephalus* Smith 1953, p. 401, Pl. 88, Fig. 1137.  
 From coral clumps on the outer reef flat seawards. Moderately common. (4)

## Suborder OSTRACIOIDEA

## Family OSTRACIODONTIDAE. Boxfishes, cowfishes

Genus *Ostracion* Linné, 1758*Ostracion tuberculatus* Linné

- Ostracion tuberculatus* Linné 1758, p. 331; Herre 1924, p. 474; Smith 1953, p. 412, Pl. 92, Fig. 1177.  
 Common about coral of the reef flat and reef crest. (4, 7)

## Suborder TETRAODONTOIDEA

## Family TETRAODONTIDAE. Puffer fishes

Genus *Arothron* Müller, 1841*Arothron hispidus* (Linné)

- Tetraodon hispidus* Linné 1758, p. 333; Herre 1924, p. 492.  
*Arothron hispidus* Smith 1953, p. 420, Pl. 93, Fig. 1207.  
 One taken in V-trap on reef crest at high tide. (4)

*Arothron nigropunctatus* (Schneider)

- Tetrodon nigro-punctatus* Bloch and Schneider 1801, p. 507.  
*Tetraodon nigropunctatus* Herre 1924, p. 496.  
*Arothron nigropunctatus* Munro 1955, p. 283, Pl. 55, Fig. 825.  
 Wandering over whole of reef flat. Uncommon. (6, 7)

*Arothron reticularis* (Schneider)

- Tetrodon reticularis* Bloch and Schneider 1801, p. 506.  
*Tetraodon reticularis* Herre 1924, p. 491.  
*Arothron reticularis* Munro 1955, p. 284, Pl. 55, Fig. 829.  
 Habitat unknown: one only taken in fish trap. (7)

*Arothron stellatus* (Schneider)

- Tetrodon lagocephalus* var. *stellatus* Bloch and Schneider 1801, p. 503.  
*Arothron stellatus* Smith 1953, p. 420, Pl. 95, Fig. 1205; Munro 1955, p. 283, Pl. 55, Fig. 826.  
 Rarely seen, but known to move about reef flat at high tide. (7)

Genus *Gastrophysus* Müller, 1843*Gastrophysus sceleratus* (Gmelin)

- Tetrodon sceleratus* Gmelin 1789, p. 1444.  
*Pleuranacanthus sceleratus* Whitley 1943, Pl. 1, Fig. A.  
*Gastrophysus sceleratus* Smith 1953, p. 418, Pl. 94, Fig. 1194.  
 One angled from bottom (20-30 fm) in open waters to north-east of Heron I. (4)

## Family CANTHIGASTERIDAE. Sharp-nosed puffers

Genus *Canthigaster* Swainson, 1839*Canthigaster cinctus* (Richardson)

- Tetrodon cinctus* Richardson 1848, pp. 19, 20 (on a drawing by Solander).  
*Canthigaster valentini* Herre 1924, p. 499; Smith 1953, p. 420, Pl. 94, Fig. 1208.  
 Amongst coral in all inside reef areas investigated. Moderately common. (4)

*Canthigaster janthinopterus* (Bleeker)

- Tropidichthys janthinopterus* Bleeker 1855b, p. 429.  
*Canthogaster janthinopterus* Bleeker 1865 (1864-65), p. 82, Pl. 213, Fig. 2.  
*Canthigaster janthinopterus* Herre 1953, p. 847 (for bibliography).  
 One taken on the north-eastern reef front. (4)

## Family DIODONTIDAE. Porcupine-fishes

Genus *Diodon* Linné, 1758*Diodon armillatus* Whitley

- Diodon armillatus* Whitley 1933, p. 107, Pl. 12, Fig. 1, Pl. 15, Figs. 2, 3.  
 All areas except deep open waters (very common). (7)

*Diodon bleekeri* Günther

- Paradiodon novemmaculatus* Bleeker 1864 (1864-65), p. 57, Pl. 206, Fig. 3 (*nec* Cuvier).  
*Diodon bleekeri* Günther 1910, p. 475, Pl. 178; Herre 1924, p. 506.  
 Habitat details unknown: seen reef front and taken in fish traps (apparently rare). (7)

*Diodon hystrix* Linné

- Diodon hystrix* Linné 1758, p. 335; Herre 1924, p. 504; Smith 1953, p. 415, Fig. 1182.  
 Habitat unknown: two taken in fish trap. (7)

## Order BATRACHOIDIFORMES

## Family BATRACHOIDIDAE. Frogfishes

Genus *Halophyrne* Gill, 1864b*Halophyrne diemensis* (Le Sueur)

- Batrachoides diemensis* Le Sueur 1824, p. 402.  
*Coryzichthys diemensis* Ogilby 1908c, p. 51; Fowler 1928, p. 447.  
 Occasionally found under weed-covered coral blocks on the inner reef flat. (2, 7)

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