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ANNOTATED CHECKLIST OF THE FISHES OF LORD HOWE ISLAND

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SUMMARY

Lord Howe Island, some 630 kilometres off the northern coast of New South Wales, Australia at 31.5° South latitude, is the world's southernmost locality with a well developed coral reef community and associated lagoon. An extensive collection of fishes from Lord Howe Island was made during a month's expedition in February 1973. A total of 208 species are newly recorded from Lord Howe Island and 23 species newly recorded from the Australian mainland. The fish fauna of Lord Howe is increased to 447 species in 107 families. Of the 390 species of inshore fishes, the majority (60%) are wide-ranging tropical forms; some 10% are found only at Lord Howe Island, southern Australia and/or New Zealand. Less than 4% of the shore fishes are endemic to the Lord Howe region (including Norfolk Island). Some 32% of the inshore species are restricted to the south-western or southern Pacific Ocean.

INTRODUCTION

Lord Howe Island (31°32'S, 159°04'E), which lies some 630 kilometres off the coast of northern New South Wales (Fig. 1), is of special interest to marine biologists because of its geographic position. Sparse coral growth may be present at other areas farther south, but Lord Howe Island is the world's southernmost locality exhibiting a well developed barrier coral reef community and associated lagoon. The inshore fish fauna of the island is particularly interesting as it is composed of a combination of tropical and temperate forms. The present paper includes a list of the fishes reported from Lord Howe Island prior to 1973 and 39 unreported records based on specimens at the Australian Museum, Sydney. In addition, 169 new records are reported of which specimens were taken or individuals positively observed during February 1973 by a team of ichthyologists from The Australian Museum and Bishop Museum, and financed by the National Geographic Society, Washington, D.C. and the Trustees of The Australian Museum. Also, Allen (in press) has recorded 28 new records based on material collected by the expedition.

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Records of The Australian Museum, 1976, **30,** 365-454, Figures 1-2.

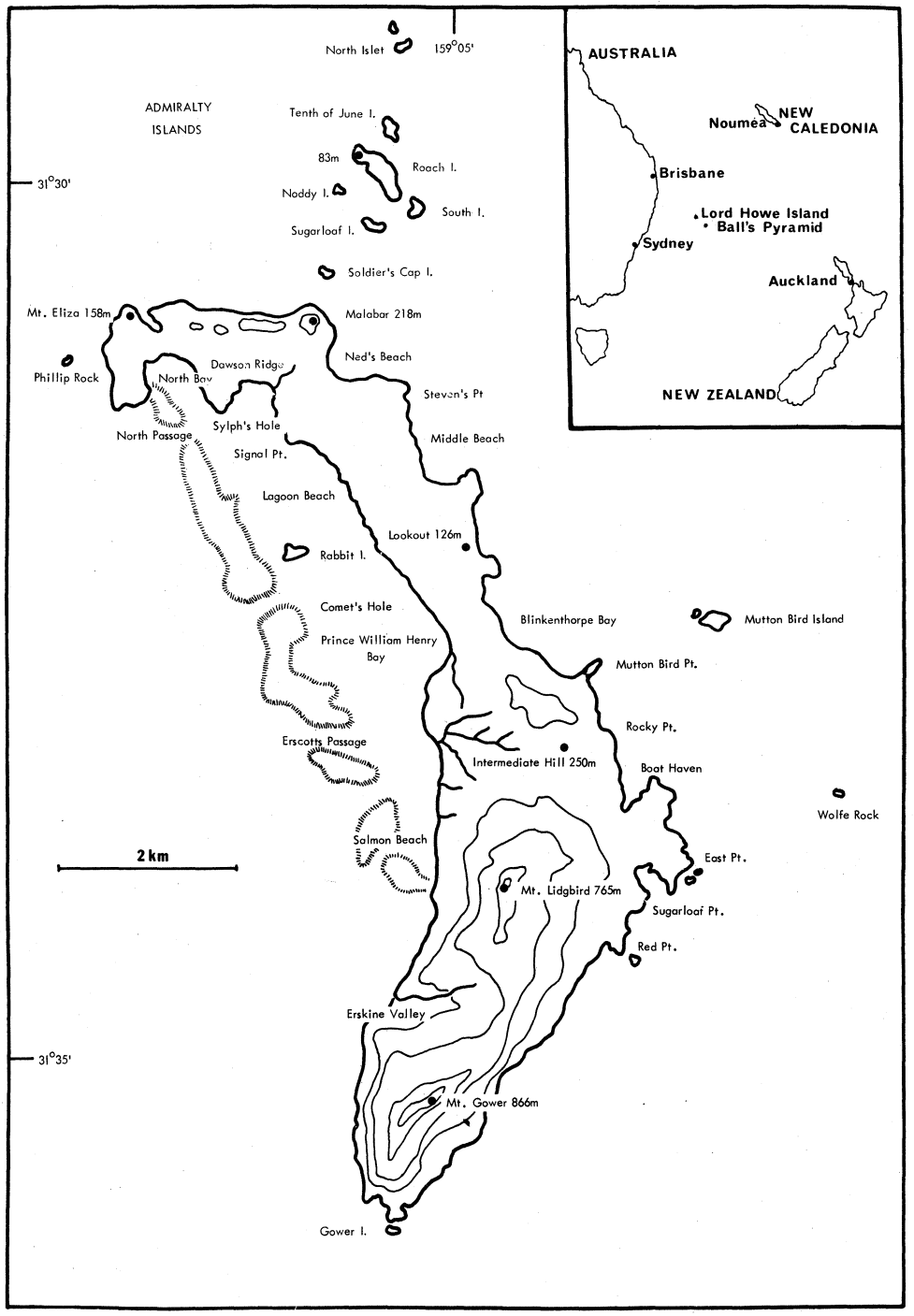

Fig. 1. Lord Howe Island.

Over 6,000 specimens belonging to 77 families and 295 species were procured during the month-long expedition; 24 species were recorded on the basis of underwater observations and photographs. A total of 99 collections was made employing a variety of methods. The most important involved the use of SCUBA with spears, rotenone, and explosives. Forty-five collections were made with spears and/or quinaldine anaesthetic. Rotenone was utilized for 17 stations, and explosives (2 pound charges of gelignite) for 10 quantitative collections. Other methods were as follows: nightlight and dipnet — 8 stations; beach strandings — 7; hook and line — 5; gill net — 4; seine — 2; and trap — 1. SCUBA diving collections covered all depths down to 50 metres. Thirty-nine of the total collections were made inside the lagoon, 12 along the outer face of the lagoon reef, 23 along rocky and coral coastal areas, and 25 in other areas, generally offshore. As a result of our collecting efforts, there are now 447 species and 107 families of fishes known from Lord Howe Island

HISTORICAL REVIEW

Lord Howe Island was first visited by Europeans in 1788. On landing in March, 1788, Blackburn noted "The bay abounds with a variety of Excellent Fish" (Rabone, 1940). There is no evidence that the island was previously inhabited by man. Various notes and paintings of Lord Howe Island fishes, usually together with those from Norfolk Island, were made by colonists and visitors between 1788 and 1840.

The first collection of Lord Howe fishes was made by the naturalists aboard HMS "Herald" in 1853. The first scientific record is apparently that of *Serranus ouatalibi* (=*Cephalopholis sexmaculatus*) by Günther in 1859.

The Australian Museum has been closely associated with the study of the natural history of Lord Howe Island for more than 120 years. John MacGillivray collected there in 1853. The first fishes from Lord Howe Island noted in the Australian Museum registers were purchased from Captain J. Armstrong in 1881 (AMS A. 10,000-10,017). Ramsay and Ogilby (1882) provided the first Australian ichthyologists' report on the island with their description of *Coris semicincta* (=*C. picta*). The first museum expedition to collect fishes was conducted by R. Etheridge and party in 1887, and formed part of the basis for the first catalogue of Lord Howe Island fishes by Ogilby (1889). This list included 88 species. Collections by Waite in 1898 and Waite and McCulloch in 1902, as well as donations by the islanders and visitors, resulted in a series of papers entitled "Additions to the fish fauna of Lord Howe Island" and culminated in Waite's 1904 Catalogue of the Fishes of Lord Howe Island. This list included 180 species.

McCulloch made a number of trips to Lord Howe (his ashes repose in a monument on the island). Additions to the total number are also the result of Whitley's trip in 1939, as well as numerous donations through the years from the islanders. Their continued interest has resulted in many of the deep water species listed, as these are picked up on the beaches after storms. The additions by McCulloch, Whitley, and others (see the bibliography) have brought the total of known Lord Howe Island fishes to 208 by the end of 1972.

Most of the fishes collected from Lord Howe Island are in the Australian Museum. A number of species reported by Ogilby are based on specimens now in the Queensland Museum and once in the collection of the Amateur Fisherman's Association of Queensland. The British Museum (Natural History) has some early collections, as well as a collection purchased in 1926. Most of the present collection has been registered in the Australian Museum, with a representative collection in the Bernice P. Bishop Museum. Duplicates of the commonest species will be sent to the National Museum, Wellington, New Zealand; Queensland Museum, Brisbane; California Academy of Sciences, San Francisco; British Museum (Natural History), London; U.S. National Natural History Museum, Washington, D.C.; and Los Angeles County Museum of Natural History.

PHYSICAL FEATURES OF LORD HOWE ISLAND

Lord Howe Island is of volcanic origin and consists of a narrow strip of land extending for about eleven kilometres in a general north-south direction (see map, Fig. 1). The island is mostly covered with lush vegetation which is reminiscent of more tropical localities. The most conspicuous topographical features are the twin peaks of Mt. Lidgbird (765 m) and Mt. Gower (866 m), which occupy much of the southern portion of the island and rise abruptly from the sea. They form a spectacular backdrop to the lagoon which is situated on the leeward or western side of the island. The lagoon is approximately 6 kilometres in length and 1½ kilometres across at its widest point. It is mostly shallow (average depth about 1 metre) and consists largely of sandy bottom, but at several areas, including Sylph's Hole and Comet's Hole, depths to 8 metres rich with living coral are encountered. The lagoon barrier reef is pierced by Erscott's Passage to the south and North Pass, the latter constituting the main entrance, with a depth of 4 to 6 metres and easily negotiated by small boats. Outside the lagoon the shoreline drops off steeply to depths of 15 to 20 m and then gradually slopes to deeper water. The 200 metre contour is generally located 7 to 12 kilometres off-shore. There are several small rocky islets around the periphery of Lord Howe Island. The most noteworthy are in the Admiralty Group, which comprises 7 islets, the closest of which is situated 1½ kilometres off the north-east tip of Lord Howe Island. Ball's Pyramid is a monolithic spire which rises to an elevation of 549 m and is located about 30 kilometres south-west of the main island. It is about 1 kilometre long by ½ kilometre wide. The Pyramid is inhabited by a large population of sea birds, as are the Admiralty Islets.

UNDERSEA ENVIRONMENT

Lord Howe Island is located near the middle of an oval-shaped submerged platform (9 × 18 kilometres) with general depths of 30 to 60 metres. The bottom is rocky with deposits of calcareous sand in depressions. Fine sediments occur only in the deeper parts of the lagoon. Most of the shoreline is steep with depths of 10 to 20 metres or more immediately adjacent to shore except along the lagoon. The near-shore habitat consists mostly of highly evolved volcanic rock. Caves, ledges, fissures and archways are common features. Reef-building corals are common but exist as scattered isolated colonies and not as massive reefs. Only in restricted areas around the edge of deeper lagoon holes and parts of the western reef edge can coral growth be called profuse, but here it forms the facies of a typical tropical reef with great structural diversity. Sandy beaches occur along the lagoon shore and in three limited sections along the eastern side of the island.

As would be expected from an island at 31°32'S, there are not many coral species (Veron, 1975); temperatures are probably limiting. No systematic water temperatures have been measured at Lord Howe Island. On the basis of oceanic sea surface temperatures, the waters around Lord Howe vary from summer averages of 23°C to winter averages of 18-19°C; these data are taken from monthly maps of surface isotherms (Anonymous, 1945). Sea surface temperatures within 30 miles of Lord Howe Island (31.2-31.8°S, 158.7-159.3°E) were extracted from computerised station data of the World Oceanographic Data Center in Washington; a total of 68 stations, taken from 1935 to 1972, were within the grid. Plots of monthly extremes and means (Fig. 2) clearly indicate the seasonal differences in temperature, although the extremes of any given month are probably greater than the relatively meagre data show. Shallow waters of the lagoon exceed the above extremes, as McCulloch records temperatures varying from 21° to 27.5°C in December, 1902 in his manuscript diary. The available data do not allow an analysis of annual variations in temperature extremes, but fluctuations in the complex East Australian Current, which affects the waters around Lord Howe Island, are indicated (Highley, 1967).

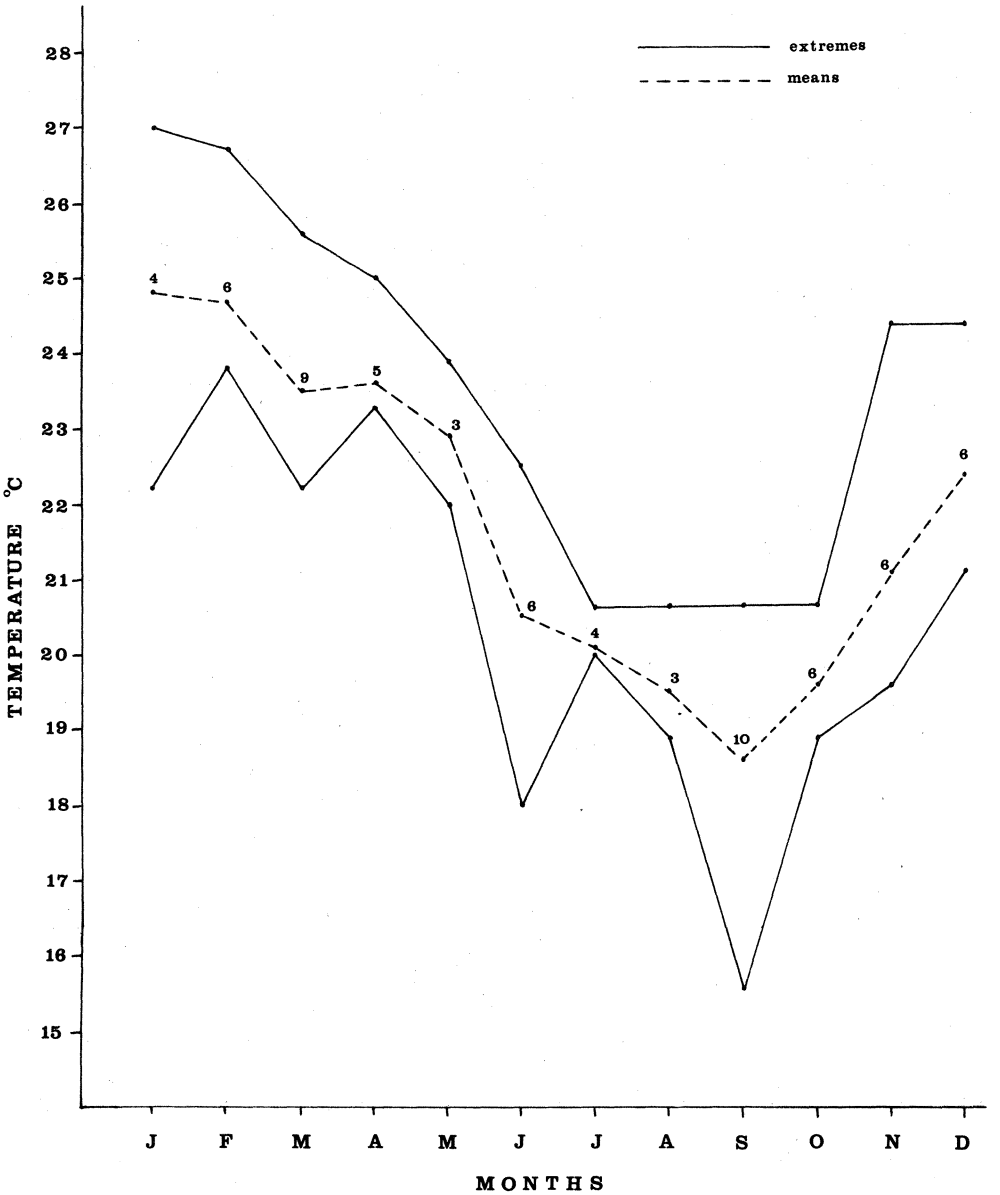

Fig. 2. Sea surface temperatures (°C) around Lord Howe Island. Numbers refer to the number of stations utilized per month.

The most striking feature of the marine habitat to one familiar with tropical coral reefs is the lush growth of algae, probably brought about by the relative scarcity of herbivorous fish schools which keep algae on tropical reefs grazed down to a stubble. The algae are mainly of tropical and subtropical genera, such as *Padina* and *Dictyota*, but in luxuriant thalli not seen in the Great Barrier Reef.

Fishes are generally scarce in the sandy areas of the lagoon. However, in rocky areas around the periphery and in the rich coralliferous areas the following species were found to be the most abundant in 1973: *Anampses elegans, Apogon norfolcensis, Goniistius ephippium, Paraglyphidodon polyacanthus, Parma polylepis, Pseudolabrus luculentus* and *Trachypoma macracanthus*. Of lesser abundance in the lagoon were *Amphiprion maccullochi, Belonepterygion fasciolatum, Chaetodon flavirostris, C. trincinctus, Coris* sp., *Parupeneus signatus* and *Eupomacentrus gascoynei*. These species range down to at least 16 metres.

The most common fishes seen while diving outside the lagoon in 10-15 metres in rocky areas were *Apogon norfolcensis, Apogon* sp., *Chromis hypsilepis, Eupomacentrus gascoynei, E. fasciolatus, Glyphidodontops notialis, Goniistius ephippium, Paraglyphidodon polyacanthus, Parma polylepis, Pempheris* spp., *Pseudolabrus luculentus* and *Trachypoma macracanthus*.

The greatest number of both species and individuals was observed below 20 metres depth in the vicinity of North Islet. *Paracaesio pedleyi, Labracoglossa nitida* and *Pseudanthias* sp. occurred here in large schools. *Chromis hypsilepis* and *Pseudolabrus luculentus* were still among the most common species at depths below 35 metres.

FAUNAL COMPOSITION AND ZOOGEOGRAPHY

The 11 most speciose families with the number of species for each indicated in brackets are as follows: Labridae (47), Pomacentridae (26), Gobiidae (23), Chaetodontidae (22), Myctophidae (18), Serranidae (17), Muraenidae (13), Blenniidae (13), Carangidae (12), and Acanthuridae (12). Thus, about 10% of the total number of families contain approximately 45% of the species. An additional 16 families are represented by 5-10 species each and 49 families by only a single species. Of the 11 most speciose groups, all except the Myctophidae are typically abundant around coral reefs. Myctophids are well represented due to specimens cast ashore after storms. No mid-water work was conducted on the 1973 expedition. Although storm conditions, with winds up to 140 km/h, prevailed for several days during our stay, no deepwater fishes were taken from the beach. No midwater or bottom trawling has ever been completed in the close vicinity of Lord Howe Island. Such operations in the future will doubtless increase the known fauna. The 31 species of deepwater fishes representing 10 families were all beach specimens, indicating the island's proximity to deep water and perhaps the influence of upwelling, as well as storms.

A zoogeographic analysis of the fish fauna is presented in Table 1. Each category in the table is mutually exclusive of the others (*i.e.*, a given species occurs only in one category). The tropical Indo-Pacific category is distinguished from the tropical Pacific by records, or by the lack thereof, of species from the Indian Ocean. The vast majority of species in both categories are not found in the eastern Pacific. Australian species are included in most of the different categories.

Most of the species found at Lord Howe Island also occur off eastern Australia. This is not surprising, considering the relatively short distance to the Australian continent and the presence of a well developed coral reef. However, the Lord Howe fauna is depauperate when compared with other coral reef localities. Approximately 850 species have been taken at the Capricorn Group at the southern extreme of the Great Barrier Reef (Talbot, unpublished). Perhaps twice this number of species occurs over the entire extent of this

Table 1. Zoogeographic Analysis of the Lord Howe Island Fish Fauna

Distribution	No. Species	% of inshore fishes	% of total fishes
Tropical Indo-Pacific	164	42.1	36.7
Oceanic-midwater and pelagic (mostly widespread)	54	—	12.1
Common to Lord Howe Island and Australia	51	13.1	11.4
Tropical Pacific	50	12.8	11.2
Common to Lord Howe Island,[1] southern Australia and New Zealand[2]	30	7.7	6.7
Uncertain	28	7.2	6.3
Worldwide tropical and subtropical inshore	16	4.1	3.6
Lord Howe Island — Norfolk endemics	15	3.8	3.4
Tropical and subtropical western South Pacific	11	2.8	2.5
Common to Lord Howe Island, eastern Australia and/or New Caledonia	10	2.6	2.2
Common to Lord Howe Island and New Zealand[2]	9	2.3	2.0
Common to Lord Howe Island, Australia and Melanesia	6	1.5	1.3
Common to Lord Howe Island, Australia and Japan	3	0.8	0.7

Inshore species	390
Pelagic and offshore species	54
Freshwater species	3
Total species	447

[1] Includes Norfolk Island and Middleton Reef

[2] Includes Kermadec Islands

massive reef complex. The lower water temperatures at Lord Howe Island are doubtless limiting for fishes, as they are likely to be for corals. Some of the uncommon species, which were observed only, or one or two specimens collected, may represent expatriates that originated from the warmer waters and are not present as breeding populations at Lord Howe Island. *Lienardella fasciata, Coris gaimard, Pomacentrus pavo,* and *Chromis nitidus* are typical examples of species which fall in this category. The vagaries of southern currents and the annual fluctuations in water temperature extremes may well result in a change in faunal composition from one period to another. The dynamic nature of the faunal composition due to the dependence of recruitment from other areas for certain species might at least partially account for the fact that we collected only about 65% of the total number of species known from the island.

Our collecting methods did not capture larger oceanic species, such as the scombroids, and according to local residents, the fishing competition held during our stay did not result in the variety of fishes caught in some previous years. The occurrence of some species, such

as the food fish *Chrysophrys auratus,* is apparently variable. According to local residents, this species is present only for a few months in some years and not in others. This cold water species, known from the southern half of Australia and New Zealand, apparently does not consistently breed at Lord Howe Island.

The largest category of fishes found at Lord Howe is composed of reef species which are widely distributed in the tropical Indian Ocean and western Pacific. Indeed, approximately 75% of the inshore fauna is comprised of tropical species. About 15% of the inshore fishes are temperate forms confined to the region which encompasses New Zealand and southern Australia. Relatively few species are endemic to Lord Howe Island (Table 2). Nearby Middleton Reef and Norfolk Island are herein considered as part of the Lord Howe Island endemic region. Waite (1910; 1916) compared the faunal composition of Lord Howe, Norfolk, and the Kermadec Islands. However, this information is of limited use as the two latter areas were inadequately sampled. Further collections there will no doubt reveal species previously known only from Lord Howe Island. A number of the temperate species in the above categories are abundant at Lord Howe Island.

Table 2. Fish Species Endemic to the Lord Howe Island Region

Amphiprion mccullochi
Bathygobius aeolosoma
Cantherhines longipinnis
Chaetodon tricinctus[1,2]
Chironemus microlepis[1]
Cirrhitus splendens
Enigmapercis sp.
Genicanthus semicinctus
Gymnothorax annasona[1,2]
Insopiscis altipinnis
Muraenichthys nicholsae[1]
Navodon analis
Norfolkia squamiceps[1]
Syngnathus howensis
Vauclusella rufopileum[1]

[1] also recorded from Norfolk Island

[2] also recorded from Middleton Reef

Briggs (1974) considered Lord Howe Island a distinct zoogeographic province that included Norfolk Island and Middleton and Elizabeth Reefs. The Lord Howe-Norfolk Province was established in part on the basis of Waite's (1916) data giving 22% endemic shore fish species. We have greatly reduced that number to less than 4% for Lord Howe and expect that intensive collecting at Norfolk would produce similar results.

If such a low percentage of endemism is not indicative of a distinct zoogeographic province, it is difficult to place the region in one of Brigg's two recognised provinces of eastern Australia. While a large percentage of the shore fishes are tropical, significant numbers are found also in subtropical and temperate regions of eastern Australia (Table 1). These latter species are often the most abundant and many of the tropical species may represent expatriates. For these reasons we think Lord Howe should be considered part of a transition zone between the tropical and warm temperate regions of eastern Australia.

A small, but nevertheless interesting, segment of the fauna is composed of species which are relatively widespread across the western portion of the South Pacific. In the first report of fishes from remote Easter Island, Kendall and Radcliffe (1912) stated that the 22

species which they studied seemed closer to those of Norfolk Island (and hence also Lord Howe Island) than Mangareva (Tuamotus), which is nearer. However, John E. Randall and Gerald R. Allen, who collected fishes at Easter in 1969 and raised the fish fauna to 109 species, found that most of the fishes at the island are wide-ranging tropical Indo-Pacific species; thus there is a closer faunal tie to Mangareva and other more tropical islands of the Indo-Pacific than to Norfolk and Lord Howe (Randall, 1970). Nevertheless, there is a small but significant segment of Easter's fish fauna which links it to Norfolk and Lord Howe. The muraenid eels *Enchelycore ramosus, Gymnothorax porphyreus,* and *G. panamensis,* the serranid *Trachypoma macracanthus,* and the labrid *Anampses femininus* are common to Easter and Lord Howe islands (the two *Gymnothorax* range to the eastern Pacific), but do not occur in tropical localities. *Gymnothorax eurostus* and *Seriola lalandi* are also found in this southern zone of latitude but occur in the higher latitudes of the northern hemisphere as well, thus exhibiting an anti-tropical distribution. In addition, there are species at Easter Island of subtropical genera such as *Goniistius, Pseudolabrus, Bathystethus,* and *Navodon* which are closely related to species from Lord Howe Island and environs.

Some of the fishes common to Easter and Lord Howe were collected by Randall in 1970-71 at the islands of Pitcairn and Rapa which are intermediate in location at 25°S and 27°30'S, respectively. Also taken at these islands was an undescribed parrotfish (*Scarus*) which later was collected at the southern Great Barrier Reef and was sighted by Allen at Lord Howe Island. In addition, there is an undescribed angelfish of the genus *Genicanthus* from Pitcairn and Raivavae, Austral Islands which is closely related to the endemic *G. semicinctus* from Lord Howe Island (Randall, in press).

A few inshore fishes are known to occur in both temperate and subtropical Australia and Japan. Three of the Lord Howe species exhibit a similar distribution. These are perhaps relict forms which were once widespread over the entire western Pacific. Additional studies are needed in order to determine the faunal relationships between these widely separated areas. It is possible that some of the Australian species will prove to be distinct when they are compared closely with their Japanese counterparts.

The following 23 species are newly recorded from the waters of continental Australia in the body of the checklist: *Synodus englemani, Ceratoscopelus warmingi, Diaphus fragilis, D. perspicillatus, Hygophum hygomi, Myctophum nitidulum, Notoscopelus resplendens, Scopelopsis multipunctatus, Coryphaena equiselis, Bathystethus cultratus, Pempheris vanicolensis, Apogon coccineus, Chaetodon mertensii, Macropharyngodon meleagris, Pseudocheilinus hexataenia, Pseudojuloides cerasinus, Plagiotremus laudandus, Eviota smaragdus, Paragobiodon lacunicola, P. xanthosoma, Ptereleotris evides, Zebrasoma scopas* and *Torquigener altipinnis.* These species are represented by previously unrecorded specimens in the collections of the Australian Museum.

METHODS OF PRESENTATION

We have adopted the phylogenetic arrangement proposed by Greenwood *et al.* (1966), except in a few cases different family names are used. For example, we have retained Monacanthidae and Balistidae, whereas these two groups were included in the Balistidae by Greenwood *et al.*

The accepted Australian common name appears immediately after the scientific name of each family. The common name is followed by the initials of the co-author(s) primarily responsible for that particular section. Under the family heading the species are arranged alphabetically by genus and species. An asterisk after the specific name indicates a new record for Lord Howe Island. Abbreviated literature citations which include the author, year of publication, page number, and locality, are given for the original description, the first Lord Howe Island record for the species, and in a few cases junior synonyms. The complete

reference is listed at the end of the paper. The literature citations are followed by a brief paragraph containing information on relative abundance, habitat, depth distribution, taxonomic problems, and geographic distribution. In many cases the exact number of specimens taken in 1973 is indicated. However, the number of specimens for species listed as common or abundant does not appear. These species are generally represented by a series of at least 10-20 specimens at either the Australian Museum, Sydney or the Bernice P. Bishop Museum, Honolulu (abbreviated as AMS and BPBM in the subsequent text). Catalogue numbers are given for unidentified or undescribed species. Catalogue numbers for specimens collected during February 1973 are as follows: AMS I. 17357-I. 17424; BPBM 14736-14951.

SPECIES ACCOUNTS

CARCHARHINIDAE . . . WHALER AND TIGER SHARKS (J.R.P.)

Carcharhinus amblyrhynchos

Carcharias (Prionodon) amblyrhynchos Bleeker, 1856d: 467 (Solombo, Red Sea).

Carcharhinus menisorrah (non Müller and Henle, 1839). — Waite, 1904a: 140 (in part, Lord Howe Island).

Galeolamna macrurus (non Ramsay and Ogilby, 1887). — Whitley, 1940a: 97 (Lord Howe Island).

Two specimens in AMS collections (I. 5425 and IA. 1285) from 1903 and 1925. Widespread in tropical Indo W.-Pacific including eastern Australia.

Carcharhinus galapagensis

Carcharias galapagensis Snodgrass and Heller, 1905: 343 (Galapagos).

Carcharhinus menisorrah (non Müller and Henle, 1839). — Waite, 1904a: 140 (in part, Lord Howe Island).

Common outside the lagoon and inside at night. This species was kindly identified by Prof. J. A. F. Garrick of New Zealand. Six X-rayed specimens had the following vertebral counts: precaudal 106-108, caudal 95-102. An insular species, known from all oceans.

Galeocerdo cuvier

Squalus cuvier LeSueur, 1822: 351 (Australia).

Galeocerdo rayneri Macdonald and Barron, 1868: 369 (Lord Howe Island).

Teeth in collection (AMS I. 7846) from a 1907 specimen. Worldwide distribution including eastern Australia.

Prionace glauca

Squalus glaucus Linnaeus, 1758: 235 (Western Europe).

Prionace glauca. — Ogilby, 1899: 732 (Lord Howe Island).

Two embryos in collection (AMS IB. 674-5) from 1900. World-wide distribution including eastern Australia.

SQUALIDAE . . . DOGFISH SHARKS (D.F.H.)

Isistius brasiliensis

Scymnus brasiliensis Quoy and Gaimard, 1824: 198 (Brazil).

Isistius brasiliensis. — Waite, 1900: 195 (Lord Howe Island).

Nine specimens at AMS taken between 1900 and 1971. Tropical and subtropical circumglobal distribution including eastern Australia.

DASYATIDAE . . . STINGRAYS (D.F.H.)
*Taeniura brocki**

Taeniura brocki Schultz, 1953: 18 (Marshall Islands).

Several individuals observed (2 collected) in the lagoon. Widespread in the tropical western Pacific.

ALBULIDAE . . . BONE FISHES (J.R.P.)
Albula vulpes

Esox vulpes Linnaeus, 1758: 313 (Bahamas).

Albula neoguinaica. — Whitley, 1940: 398 (Lord Howe Island).

None collected in 1973. The specimen upon which Whitley's record is based cannot be found at AMS, but a second specimen (AMS I. 1405) was collected in 1945. Circumglobal, tropical and subtropical distribution including eastern Australia.

ANGUILLIDAE . . . FRESHWATER EELS (J.R.P.)
Anguilla australis

Anguilla australis Richardson, 1841: 22 (Tasmania),

Anguilla australis. — Ramsay, 1888: 32 (Lord Howe Island).

One juvenile collected in brackish water. Numerous specimens in AMS collections. Eastern Australia, Lord Howe and Norfolk Islands, and New Zealand.

Anguilla reinhardti

Anguilla reinhardti Steindachner, 1867a: 15 (Queensland).

Anguilla reinhardti. — Waite, 1901: 36 (Lord Howe Island).

Common in freshwater. Known from eastern and southern Australia, New Caledonia and Lord Howe Island.

MURAENIDAE . . . MORAY EELS (D.F.H.)
Anarchias sp.*

Two specimens collected outside the lagoon in 2-25 m. One deposited at AMS (I. 17367-008) and one at BPBM.

Echidna nebulosa

Muraena nebulosa Ahl, 1789: 7 (East Indies).

Muraena nebulosa. — Ramsay, 1888: 32 (Lord Howe Island).

Two specimens collected at Lord Howe Island in 1918 at AMS. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Enchelycore ramosa**

Gymnothorax ramosus Griffin, 1926: 539 (New Zealand).

One specimen collected outside the lagoon in 25 m. Known from Lord Howe Island, Easter Island (Randall and McCosker, in press) and New Zealand.

Gymnothorax annasona

Gymnothorax flavimarginatus. — Waite, 1904a: 145 (Lord Howe Island).

Gymnothorax flavimarginata annasona Whitley, 1937: 220 (Middleton Reef, Lord Howe Island, and Norfolk Island).

Several specimens collected from lagoon and outer reef habitats to depths of 15 m. Known from Middleton Reef, Lord Howe Island, and Norfolk Island.

*Gymnothorax chilospilus**

Gymnothorax chilospilus Bleeker, 1864: 103, 142 (Indonesia).

One specimen collected at Middle Beach. Widespread in the tropical western Pacific including eastern Australia.

Gymnothorax eurostus

Thyrsoidea eurosta Abbott, 1861: 478 (Hawaiian Islands).

Gymnothorax chalazias Waite, 1904a: 145 (Lord Howe Island).

Common in lagoon and outer reef habitats. Previously 3 specimens were known from Lord Howe Island, including the type of *G. chalazius* (AMS I. 5479). Anti-tropical, north and south Pacific.

*Gymnothorax meleagris**

Muraena meleagris Shaw and Nodder, 1795: pl. 220 (Pacific).

One individual observed at Middle Beach in 1 m. Two unreported specimens at AMS had been previously collected in 1907 and 1910. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Gymnothorax nubilus

Muraena nubila Richardon, 1848: 81 (Norfolk Island).

Gymnothorax nubilus. — Waite, 1904a: 145 (Lord Howe Island).

One specimen speared off the Admiralty Islands in 25 m. Previously known from 6 specimens. James Stuart's unpublished painting (No. 144) in the library of the Linnean Society of N.S.W., identified as *Lycodontis* sp. from Norfolk Island by Whitley (1955: 130), appears to be this species. Reported from Norfolk Island, Lord Howe Island and New Zealand.

*Gymnothorax panamensis**

Muraena panamensis Steindachner, 1876: 19 (Panama).

One specimen collected off North Rock in 30 m. Known also from Easter Island, Isla San Felix and certain localities in the eastern Pacific including the Galapagos Islands (Randall and McCosker, in press).

Gymnothorax porphyreus

Murenophis porphyreus Guichenot 1848a: 343 (Chile).

Muraena afra. — Ramsay, 1888: 32 (Lord Howe Island).

Gymnothorax thyrsoidea. — Waite, 1904a: 144 (Lord Howe Island).

Common in lagoon (5 collected) and outer reef habitats. Ogilby recorded this species as *Muraena afra* (AMS I. 1561 and I. 1563). Subsequently specimens have been called *G. thyrsoidea* based on identification by Boulenger (Waite, 1904a). Chile, Peru, Juan Fernandez Island, Isla San Felix, and Easter Island (Randall and McCosker, in press).

Gymnothorax sp. A*

One specimen (AMS I. 17456-001) 340 mm TL of this striking eel was presented by a local resident. It has an irregular network of brown lines over a background of light brown and white. The gill opening is surrounded by a white ring.

Gymnothorax sp. B*

One specimen (BPBM 14927) 315 mm TL, which is marked with white reticulations and a black ring around the gill opening, was collected.

Gymnothorax sp. C*

One specimen (BPBM 14786) 216 mm TL collected which has small black spots and white margins on the anal and dorsal fins.

CONGRIDAE . . . CONGER EELS (D.F.H.)

Ariosoma howensis

Congermuraena mellisii. — Ogilby, 1889a: 72 (Lord Howe Island).

Congrellus gilberti Ogilby, 1898b: 288 (in part, Lord Howe Island specimens only).

Congermuraena howensis McCulloch and Waite, 1916: 438-439 (Lord Howe Island).

Known from the three syntypes (AMS I. 13691), and two additional specimens (AMS I. 4148 and I. 7045). Nothing is known of its habits. Castle (1964) provisionally regarded this species as a synonym of *A. mauritianus* (Pappenhein, 1914) which had been described from larval stages. Known only from Lord Howe Island, but probably widespread.

Conger cinereus

Conger cinereus Rüppell, 1828: 115 (Red Sea).

Leptocephalus cinereus. — Waite, 1900: 197 (Lord Howe Island).

Known from Lord Howe Island from one specimen (AMS I. 4278), which is abnormal in having only one pore behind the eye, but agrees in other features with *C. cinereus.* Widespread in the tropical Indo-W. Pacific.

*Conger wilsoni**

Gymnothorax wilsoni Bloch and Schneider, 1801: 529 (Australia).

Two specimens collected in shallow rocky areas of the lagoon. It is common in New South Wales and northern New Zealand. The species has been recorded in Australia as *C. labiatus.* Kanazawa (1958), however, has applied the name *C. wilsoni,* which was inadequately described, to this species and recognized the related *C. verreauxi,* common in southern Australia and generally regarded as *C. wilsoni* in Australia. Castle (1964) followed the nomenclature of Kanazawa for these 2 species in New Zealand. Also known from southern Queensland, New South Wales, Western Australia, and northern New Zealand.

Gnathophis sp.

Congermuraena longicauda. — Waite, 1900: 196 (Lord Howe Island).

Gnathophis habenata longicauda. — Castle, 1963: 19 (in part; Lord Howe Island and Karuah River Mouth, N.S.W. only).

Common (3 specimens collected) outside the lagoon down to 25 m. Specimens are at AMS from southern Queensland and Sydney. The specimens have been compared with the type of *Gnathophis longicauda* and there are significant differences. Castle (1963) listed vertebral counts for 2 specimens of this species, which had been misidentified as *Gnathophis longicauda* (=*G. habenata*).

OPHICHTHYIDAE . . . SNAKE EELS (D.F.H.)

Callechelys marmoratus

Dalophis marmorata Bleeker, 1853c: 247 (Ceram).

Callechelys marmoratus. — McCulloch, 1923b: 14 (Lord Howe Island).

Known from one specimen (AMS IA. 939) collected in 1922. Widespread in the tropical western Pacific.

Callechelys melanotaenia

Callechelys melanotaenia Bleeker, 1864: 66 (Ambon).

Callechelys melanotaenia. — Waite, 1903: 21 (Lord Howe Island).

Known from Lord Howe Island on the basis of two previously collected specimens (AMS I. 5193 and IA. 3252). Widespread in the tropical Indo-W. Pacific.

Cyclophichthys cyclorhinus

Ophichthus versicolor. — Waite, 1903: 22 (Lord Howe Island).

Ophichthus cyclorhinus Fraser-Brunner, 1934: 466-468 (Great Barrier Reef).

One specimen dipnetted under a night light. Previously 3 specimens were known from the island (AMS IA. 949, I. 2508, I. 13671). McCosker (personal communication) believes that this species may be a synonym of *Elapsopis versicolor* (Richardson).

Malvoliophis pinguis

Ophichthus pinguis Günther, in Brenchley, 1873: 430 (Solomon Islands).

Bascanichthys pinguis. — Waite, 1903: 22 (Lord Howe Island).

The only known specimen (AMS I. 5239) was destroyed in 1911. Also recorded from the Solomon Islands, Great Barrier Reef, and New South Wales.

*Muraenichthys laticaudatus**

Myropterura laticaudata Ogilby, 1897: 247-248 (Fiji).

Two specimens collected over sand in the lagoon. Specimens at AMS from New Guinea and Western Australia.

Muraenichthys nicholsae

Muraenichthys nicholsae Waite, 1904: 142 (Lord Howe Island).

Common in lagoon and outer reef over sand in 2-25 m. Although McCosker (1970) did not treat this species, it appears distinct, possibly close to *M. macropterus* Bleeker. Known only from Lord Howe Island.

*Myrichthys maculosus**

Muraena maculosa Cuvier, 1817a: 232 (no locality given).

This species is recorded from 1 specimen collected in 1923 (AMS IA. 1397). Another specimen at AMS was taken at Norfolk Island. Widespread in the tropical Indo-W. Pacific.

Ophichthys sp.*

The single specimen (AMS I. 13692), taken in 1915, is damaged and lacks most teeth.

CLUPEIDAE . . . SARDINES AND SPRATS (J.R.P.)
Spratelloides gracilis

Spratelloides gracilis Temminck and Schlegel, 1846: 238 (Japan).

Spratelloides gracilis. — Ogilby, 1889a: 72 (Lord Howe Island).

A school of 600 individuals was collected outside the lagoon in 10 m during an explosive station. Widespread in the tropical Indo-W. Pacific including eastern Australia, where it has been recorded as *S. japonicus.*

ENGRAULIDAE . . . ANCHOVIES (J.R.P.)
*Engraulis australis**

Atherina australis White, 1790: 296 (New South Wales).

One postlarva dipnetted over deep water. Known only from eastern Australia, New Zealand and Lord Howe Island.

GALAXIIDAE . . . JOLLYTAILS (D.F.H.)
Galaxias maculatus

Mesites maculatus Jenyns, 1842: 119 (Tierra del Fuego, South America).

Austrocobitis attenuatus. — Whitley, 1935: 41 (Lord Howe Island).

Known from 3 juveniles collected from freshwater streams in 1889 and 1962. Recorded from South Australia, Victoria, Tasmania, New South Wales, southern Queensland, Lord Howe Island, New Zealand, Chile, Argentina, and Falkland Islands.

GONOSTOMATIDAE . . . LIGHT FISHES (J.R.P.)
Maurolicus muelleri

Salmo muelleri Gmelin, 1789: 1378 (Norway).

Maurolicus pennanti australis. — McCulloch, 1923b: 114 (Lord Howe Island).

The only Lord Howe Island specimen is that recorded by McCulloch (AMS I. 960). Inadequate study precludes the recognition of more than 1 species in the genus (Grey, 1964). Apparently cosmopolitan distribution including eastern Australia, midwater.

STERNOPTYCHIDAE . . . HATCHET FISHES (J.R.P.)
Argyropelecus aculeatus

Argyropelecus aculeatus Valenciennes (in Cuvier and Valenciennes), 1849: 302 (Azores).

Argyropelecus (Sternoptychides) amabilis Ogilby, 1888c: 313 (Lord Howe Island).

The lectotype and 2 paralectotypes (AMS I. 16263-001, -002) of Ogilby's nominal species were transferred to the AMS collections in 1971 with all of the other fish types in the Macleay Museum at the University of Sydney. Worldwide distribution including eastern Australia, midwater.

SYNODONTIDAE . . . LIZARD FISHES (B.C.R.)

*Synodus englemani**

Synodus englemani Schultz, 1953: 41 (Marshall Islands).

Rare, 1 individual collected at North Islet in 25 m. We provisionally identify the specimen as *S. englemani*. The Australian members of *Synodus* are currently being studied by Russell. Specimens have recently been collected from One Tree and Lizard Islands, Great Barrier Reef, new record for Australia. Previously known only from the Marshall Islands, this species is probably widespread throughout the Indo-W. Pacific including eastern Australia.

*Synodus hoshinonis**

Synodus hoshinonsis Tanaka, 1917: 38 (Hiro, Japan).

Rare, 1 individual collected in 25 m outside the lagoon off Mt. Lidgbird. Known previously from southern Japan and eastern Australia where it has been recorded as *Synodus similis* McCulloch (1921), an apparent junior synonym (Matsubara, 1938).

*Synodus houlti**

Synodus houlti McCulloch, 1921: 165 (Capricorn Group, Queensland).

Synodus japonicus (non Houttuyn, 1782). — McCulloch, 1921: 165 (in part, Lord Howe Island).

Four of the 9 specimens in AMS (I. 5341-2, I. 1954) from Lord Howe Island apparently referred to by McCulloch (1921) as *Synodus japonicus* are *S. houlti*. Although Norman (1935) placed *S. houlti* in the synonymy of *S. variegatus*, examination of further material leaves little doubt that *S. houlti* is a distinct species (Russell, in prep.). Known also from eastern Australia.

Synodus variegatus

Salmo variegatus Lacepede, 1803: 157 (no locality given).

Synodus japonicus. — McCulloch, 1921: 165 (in part, Lord Howe Island).

Collected in lagoon and outer reef habitats in 1-5 m over sand. Widespread in the tropical Indo-W. Pacific including eastern Australia, where it was recorded as *Synodus japonicus* (Houttuyn) by McCulloch (1921).

Synodus sp.*

Rare, 2 specimens, both 153 mm SL, collected at Ball's Pyramid in 31 m and off Phillip Point in about 20 m. Also known from the southern Great Barrier Reef and northern New Zealand, the proposed type locality (Russell, in prep.). Specimens deposited at AMS (I. 17421-001) and BPBM (14655).

*Trachinocephalus myops**

Salmo myops Schneider (ex Forster ms), in Bloch, 1801: 421 (St. Helena).

Several unreported specimens from Lord Howe Island are deposited at AMS. Circumtropical distribution including eastern Australia.

MYCTOPHIDAE . . . LANTERN FISHES (J.R.P.)

*Centrobranchus choerocephalus**

Centrobranchus choerocephalus Fowler, 1904: 754 (Hawaii).

Three juveniles dipnetted over deep water. Tropical Pacific, subtropical south Pacific, and tropical Indian (?) oceans (Bekker, 1964), midwater.

Ceratoscopelus warmingi

Scopelus (Nyctophus) warmingii Lütken, 1892: 259 (North Atlantic).

Lampanyctus townsendi (non Eigenmann and Eigenmann, 1889). — McCulloch, 1923b: 115 (Lord Howe Island).

Known from the Atlantic, Indian and south Pacific oceans including eastern Australia (new record for Australia based on numerous examples recently taken by midwater trawl off Sydney) and New Zealand, midwater.

*Diaphus fragilis**

Diaphus fragilis Tåning, 1928: 61 (North Atlantic).

Aethoprora perspicillata (non Ogilby, 1898a). — Waite, 1904a: 149 (in part, Lord Howe Island).

One specimen (AMS I. 3191) in collection. Worldwide including eastern Australia (new record for Australia based on specimens recently taken by midwater trawl off Sydney), midwater.

*Diaphus danae**

Diaphus danae Tåning, 1932: 140 (New Zealand).

One unrecorded specimen (AMS IA. 3257) collected on beach in 1927. Known from the South Pacific including New Zealand, midwater.

*Diaphus garmani**

Diaphus garmani Gilbert, 1906: 258 (Cuba).

One unrecorded specimen (AMS IA. 958) collected from beach in 1922. Probably worldwide tropical and subtropical distribution, midwater.

Diaphus perspicillatus

Aethoprora perspicillata Ogilby, 1898a: 36 (Lord Howe Island).

Probably worldwide distribution (recorded as *D. elucens*), midwater, including eastern Australia (new record for Australia, based on specimens recently taken by midwater trawl off Sydney; Whitley's (1939) record from New South Wales is based on a specimen of *D. mollis*; Whitley's (1933) figure of *D. perspicillatus* from Lord Howe Island is the new species discussed below) and possibly New Zealand. The holotype is at the Queensland Museum (QM I. 794), registered in 1912.

Diaphus sp.*

Aethoprora perspicillata (non Ogilby, 1898a). — Waite, 1904a: 149 (in part, Lord Howe Island).

This species is the most common *Diaphus* from the beach in the AMS collections. It was figured as *D. perspicillatus* by Whitley (1933: fig. 1) and will be described in a paper on the lanternfishes of eastern Australia (Paxton, ms), midwater.

Gonichthys barnesi

Gonichthys barnesi Whitley, 1943: 174 (Lord Howe Island).

One dipnetted over deep water. Widespread from the Indian Ocean to New Zealand including eastern Australia, midwater.

Hygophum hygomi

Scopelus hygomi Lütken, 1892: 256 (North Atlantic).

Myctophum hygomi. — Waite, 1904a: 153 (Lord Howe Island).

Antitropical worldwide distribution including eastern Australia (Paxton, ms) and New Zealand, midwater.

Hygophum reinhardti

Scopelus reinhardti Lütken, 1892: 257 (North Atlantic).

Myctophum reinhardti. — Waite, 1904a: 154 (Lord Howe Island).

Four juveniles dipnetted over deep water. Known from the North Atlantic and Pacific including eastern Australia, midwater.

Myctophum asperum

Myctophum asperum Richardson, 1845: 41 (no locality given).

Dasyscopelus naufragus Waite, 1904a: 154 (Lord Howe Island).

Worldwide distribution including eastern Australia, midwater.

Myctophum nitidulum

Myctophum nitidulum Garman, 1899: 266 (North Pacific).

Myctophum opalinum (non Goode and Bean, 1896). — Waite, 1904a: 153 (Lord Howe Island).

Seven juveniles dipnetted over deep water. Worldwide distribution including eastern Australia (new record for Australia, based on specimens recently taken by midwater trawl off Sydney), midwater.

*Myctophum obtusirostre**

Myctophum pristilepis obtusirostre Tåning, 1928: 54 (North Atlantic).

One unrecorded specimen (AMS IA. 3632) collected from beach in 1928. Nafpaktitis (1973) has recently sorted out the confusion between this species, *M. brachygnathum* and *M. pristilepis.* Tropical Atlantic and Indo-W. Pacific, midwater.

Myctophum phengodes

Scopelus phengodes Lütken, 1892: 253 (South Atlantic).

Myctophum phengodes. — Waite, 1904a: 152 (Lord Howe Island).

One juvenile dipnetted over deep water. Circumglobal distribution in the southern hemisphere including eastern Australia and New Zealand, midwater.

*Myctophum spinosum**

Scopelus spinosus Steindachner, 1867b: 711 (China).

One unrecorded specimen (AMS IB. 4179) collected from beach in 1922. Known from the South Pacific and Indian Oceans, midwater.

Notoscopelus resplendens

Lampanyctus resplendens Richardson, 1845: 42 (no locality given).

Notoscopelus ejectus Waite, 1904a: 150 (Lord Howe Island).

Worldwide distribution including eastern Australia (new record for Australia, based on numerous specimens recently taken by midwater trawl off Sydney) and New Zealand, midwater.

Scopelopsis multipunctatus

Scopelopsis multipunctatus Brauer, 1906: 146 (South Atlantic).

Scopelopsis caudalis Whitley, 1932a: 333 (Lord Howe Island).

Circumglobal distribution in the southern hemisphere including eastern Australia (new record for Australia based on specimens recently taken by midwater trawl off Sydney) and New Zealand, midwater.

Symbolophorus barnardi?

Myctophum humboldti barnardi Tåning, 1932: 128 (South Africa).

Scopelus hookeri Whitley, 1953: 134 (Lord Howe Island).

The taxonomy of the southern hemisphere species in this genus needs clarification. Circumglobal? in the southern oceans including eastern Australia and New Zealand, midwater.

ALEPISAURIDAE . . . LANCET FISHES (J.R.P.)

Alepisaurus ferox

Alepisaurus ferox Lowe, 1833: 104 (Madeira).

Alepisaurus richardsonii. — Whitley, 1940: 411 (Lord Howe Island).

The only specimen from Lord Howe Island is that recorded by Whitley. Further studies are needed to determine if *A. richardsoni* (Bleeker, 1855b) is a distinct species (Gibbs and Wilomovsky, 1966). Widespread in the Pacific including eastern Australia, surface and midwater.

PLOTOSIDAE . . . MARINE CATFISHES (G.R.A.)

Plotosus lineatus

Silurus lineatus Thunberg, 1791: 190 (Indian Ocean).

Plotosus arab. — Ogilby, 1889a: 71 (Lord Howe Island).

Large schools of juveniles observed occasionally both in lagoon and outer reef habitats in 2-10 m. Several adults captured in gill nets near shore in the lagoon. Smith (1941) has shown that *P. lineatus* is a senior synonym of *P. anguillaris* (Bloch, 1794). Widespread in the tropical Indo-W. Pacific including eastern Australia.

GONORHYNCHIDAE . . . BEAKED SALMON (D.F.H.)

Gonorhynchus greyi

Rhynchana greyi Richardson, 1845: 44 (Western Australia).

Gonorhynchus greyi. — Ramsay, 1888: 32 (Lord Howe Island).

Ogilby (1889) reported this species as common off sandy beaches. Also known from temperate Australia and New Zealand.

GOBIESOCIDAE . . . CLINGFISHES (D.F.H.)

Aspasmogaster tasmaniensis

Crepidogaster tasmaniensis Günther, 1861: 507 (Tasmania).

Diplocrepis costatus. — Waite, 1904: 179 (Lord Howe Island).

Twenty-one specimens collected in lagoon and outer reef habitats in 1-5 m. Also known from New South Wales, Victoria, Tasmania, South Australia, and Western Australia.

Lepadichthys caritus

Lepadichthys caritus Briggs, 1969: 464 (Seychelles).

Lepadichthys caritus. — Coleman, 1974: 86 (Lord Howe Island).

Eight specimens collected from a surge channel outside the lagoon in 4 m. Previously known from the Indian Ocean, but recently recorded by Allen and Starck (1973) from the Palau Islands, New Guinea, and the Great Barrier Reef.

Lepadichthys frenatus

Lepadichthys frenatus Waite, 1904a: 180 (Lord Howe Island).

Three specimens collected from coral in the lagoon in 1-2 m. Widespread in the western tropical Pacific.

Gobiesocid sp.*

Two specimens collected from surge channels outside the lagoon off Phillip Point in 4 m.

ANTENNARIIDAE . . . ANGLER FISHES (G.R.A.)

Antennarius coccineus

Chironectes coccineus Lesson, 1830: 143 (Mauritius).

Antennarius coccineus. — Ogilby, 1889a: 20, 61 (Lord Howe Island).

A number of Lord Howe Island specimens in AMS collection. Widespread in the tropical Indo-W. Pacific.

Antennarius commersonii

Chironectes commersonii Cuvier, 1817b: 431 (Mauritius).

Antennarius commersonii. — Ramsay, 1888: 32 (Lord Howe Island).

Two specimens from Lord Howe Island in AMS collection. Widespread in the tropical Indo-W. Pacific.

*Phrynelox tridens?**

Chironectes tridens Temminck and Schlegel, 1845: 159 (Japan).

We tentatively identify a 180 mm specimen from Lord Howe Island at AMS as *tridens.* Positive identification is not possible because of a missing illicium. Previously known from Indonesia and Japan.

*Phrynelox zebrinus**

Phrynelox zebrinus Schultz, 1957: 75 (Port Jackson, Australia).

None collected in 1973, but one specimen subsequently sent to AMS by an island resident. It is entirely blackish. Schultz (1967) described *P. atra* as distinct from *P. zebrinus* on the basis of the dark coloration. However the transformation of the *zebrinus* phase to the *atra* phase in this species is well known to fish collectors and aquarists in the Sydney area. Further study is necessary to determine the true status of this species which is essentially identical to *P. striatus* (Shaw), but has 2 rather than 3 tentacles on the first dorsal spine or illicium.

Phrynelox sp.*

One specimen (AMS I. 17413-001) 104 mm SL presented to the expedition by a local resident. It appears to be closely related to *P. striatus* (Shaw), but the colour pattern does not agree with the variable markings of the many specimens of *striatus* at AMS from New South Wales. Both species have 10 pectoral rays.

MORIDAE . . . BEARDED CODS (J.R.P.)

Lotella callarias

Lotella callarias Günther, 1863: 116 (Victoria, Australia).

Lotella callarias. — Ogilby, 1899: 745 (Lord Howe Island).

Approximately 30 individuals collected outside the lagoon in 1-30 m. Future studies may show this species to be conspecific with *L. rhacina* (Bloch and Schneider, 1801) from New Zealand. Known only from Lord Howe Island and the southern half of Australia.

OPHIDIIDAE . . . CUSK EELS (D.F.H.)

Brotula multibarbata

Brotula multibarbata Temminck and Schlegel, 1846: 251-253 (Japan).

Brotula multibarbata. — Whitley, 1964b: 191 (Lord Howe Island).

Recorded from 1 individual (AMS IB. 5833) previously collected at Lord Howe Island. Widespread in the tropical Indo-W. Pacific.

Dinematichthys longifilis

Diancistrus longifilis Ogilby, 1899: 744 (Lord Howe Island).

Dinematichthys longifilis. — Waite, 1904b: 225 (Lord Howe Island).

Three specimens collected from coral in the lagoon and 7 from 20-25 m outside the lagoon. As this genus is in need of revision we tentatively use the above name for this species. It is possibly identical with *D. mizolepis* (Günther) or *D. iluocoeteoides* Bleeker. Both orange and brown individuals were taken. Known from the Great Barrier Reef and Lord Howe Island.

EXOCOETIDAE . . . FLYING FISHES (J.R.P.)

*Cheilopogon heterurus?**

Exocoetus heterurus Rafinesque, 1810: 58 (Sicily).

One juvenile collected in 1916, (AMS I. 13895) is tentatively identified as this species. A second small specimen (IB. 6321) of this genus, regurgitated by a seabird in 1962, is unidentifiable to species. The many adult flying fishes observed outside the lagoon were neither collected nor identified to species. Sub-tropical Atlantic and Pacific oceans (Parin, 1961).

*Exocoetus obtusirostris**

Exocoetus obtusirostris Günther, 1866: 283 (Cape Verde Islands).

One juvenile (AMS I. 13894) taken in 1916. Warm waters of Atlantic and South Pacific oceans (Parin, 1961).

Hirundichthys cribrosus

Exocoetus cribrosa Kner, 1867: 326 (Sydney).

Exocoetus dovii (non Gill, 1863). — Ogilby, 1889a: 71 (Lord Howe Island).

Exonautes rondeletii (non Cuvier and Valenciennes, 1846). — Waite, 1904a: 156 (Lord Howe Island).

Exonautes fulvipes Ogilby, 1908b: 8 (Lord Howe Island).

Three specimens, including the holotype of Ogilby's nominal species (I. 1955) in the AMS collections. Known from New Zealand and Australia (Parin, 1961).

*Hirundichthys speculiger**

Exocoetus speculiger Valenciennes (in Cuvier and Valenciennes), 1846: 94 (Mauritius).

Seven juveniles dipnetted over deepwater. Cosmopolitan in tropical waters (Parin, 1961) including eastern Australia and New Zealand.

HEMIRAMPHIDAE . . . GARFISHES (J.R.P.)

Euleptorhamphus viridis

Hemiramphus viridis van Hasselt, 1823: 31 (India).

Euleptorhamphus longirostris. — Waite, 1903: 24 (Lord Howe Island).

Four specimens taken outside the lagoon, where it was commonly observed flying. Circumglobal distribution in tropical and subtropical oceanic waters including eastern Australia.

Hyporhamphus australis

Hemiramphus australis Steindachner, 1866: 471 (New South Wales).

Hemirhamphus intermedius (non Cantor, 1842). — Ogilby, 1889a: 71 (Lord Howe Island).

Common in the lagoon. Restricted to eastern Australia, Lord Howe and Norfolk islands (Collette, 1974).

BELONIDAE . . . LONG TOMS (J.R.P.)
*Platybelone argalus**

Belone argalus LeSueur, 1821: 125 (West Indies, near Guadaloupe).

Three specimens collected, 2 close to shore, 1 over deep water. Four unrecorded specimens (AMS IA. 1435, IA. 1579-81) collected in 1923. According to the data presented in Parin (1967: Fig. 5), Cressey and Collette (1970: Fig. 176), and Collette (pers. comm.), these specimens are the southernmost record of the species. Circumglobal including tropical Australia.

SCOMBERESOCIDAE . . . KING GARS AND SAURIES (J.R.P.)
Scomberesox saurus

Esox saurus Walbaum, 1792: 92 (England).

Scombresox forsteri. — Ramsay, 1888: 32 (Lord Howe Island).

Represented by 3 specimens at AMS. Parin (1968: 284) considers the southern population at most only subspecifically distinct from that of the North Atlantic. Circumglobal distribution in the southern hemisphere (including eastern Australia and New Zealand as *S. forsteri*), North Atlantic and Mediterranean.

ATHERINIDAE . . . HARDYHEADS (J.R.P.)
Atherion maccullochi

Atherion maccullochi Jordan and Hubbs, 1919: 30 (Lord Howe Island).

Thirty specimens collected at Middle Beach. Known only from Lord Howe Island and Queensland.

Hypoatherina lacunosa

Atherina lacunosa Bloch and Schneider, 1801: 112 (New Caledonia).

Atherina lacunosa. — Waite, 1898: 60 (Lord Howe Island).

Numerous specimens collected, mostly from the lagoon. Widespread in the tropical Indo-W. Pacific including eastern Australia.

ISONIDAE . . . FLOWERS OF THE WAVES (J.R.P.)
*Iso rhothophilus**

Tropidostethus rhothophilus Ogilby, 1895: 323 (New South Wales).

Fifteen specimens collected in the surge zone against cliffs outside the lagoon. Known only from New South Wales, Western Australia and Lord Howe Island.

TRACHICHTHYIDAE . . . ROUGHIES (J.R.P.)
Hoplostethus elongatus

Trachichthys elongatus Günther, 1859: 10 (New Zealand).

Hoplostethus elongatus. — McCulloch, 1923a: 14 (Lord Howe Island).

One specimen collected outside the lagoon in 25 m. Known only from southern Australia, Lord Howe Island and New Zealand.

HOLOCENTRIDAE . . . SOLDIER FISHES (G.R.A.)

*Flammeo sammara**

Sciaena sammara Forsskål, 1775: 1248 (Red Sea).

One individual observed in the lagoon in 6 m by W. Doak. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Myripristis borbonicus**

Myripristis borbonicus Cuvier (in Cuvier and Valenciennes), 1829: 489 (Mauritius).

One specimen taken with explosives at North Islet in 30 m. Measures 159 mm SL, which is large for the species. Widespread in the tropical Indo-W. Pacific.

*Myripristis kuntee**

Myripristis kuntee Valenciennes (in Cuvier and Valenciennes), 1831, 7: 487 (Mauritius).

One adult specimen obtained at North Rock. Otherwise known only from Hawaii, Japan, Indonesia and Mauritius. Most authors have used the name *chryseres* for this species (P. Guézé, personal communication). Widespread in the tropical Indo-W. Pacific.

*Myripristis murdjan**

Sciaena murdjan Forsskål, 1775: 48 (Red Sea).

One individual seen by J.E.R. outside the lagoon in 15 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Ostichthys pilwaxii**

Myripristis pillwaxii Steindachner, 1893: 215 (Honolulu).

One specimen collected with explosives at North Islet in 45 m. Known from Lord Howe Island, Hawaiian Islands. Also collected at Easter Island by J.E.R. and G.R.A. and at Réunion by P. Guézé.

*Plectrypops lima**

Myripristes lima Valenciennes (in Cuvier and Valenciennes), 1831: 371 (Mauritius).

One specimen collected with rotenone at North Islet in 25 m. Widespread in the tropical Indo-W. Pacific.

ZEIDAE . . . DORIES (J.R.P.)

Zenopsis nebulosus

Zeus nebulosus Temminck and Schlegel, 1845: 123 (Japan).

Zenopsis scopus Waite, 1903: 30 (Lord Howe Island).

The holotype (AMS I. 5397) of Waite's nominal species is 38 mm SL. A second juvenile (AMS IA. 1394), 49 mm SL, was collected at Lord Howe Island in 1922. Waite's species has not been recorded in the literature since the original description and his 1904 checklist. In all

counts the two specimens agree with *Z. nebulosus* from eastern Australia, although no small juveniles are available for comparison. Waite (1903) recorded a ventral count of I,7. Both juveniles have I,5, with two rays on one fin split to the base in the type. Widespread in the Pacific, from eastern Australia to Japan and California.

VELIFERIDAE . . . VEILFINS (J.R.P.)
*Metavelifer multiradiatus**

Velifer multiradiatus Regan, 1907: 633 (north-west Australia).

One specimen, 235 mm SL, speared outside the lagoon in 45 m. Previously recorded from Mozambique, Australia, Hawaii and Japan.

AULOSTOMIDAE . . . PAINTED FLUTEMOUTHS (J.R.P.)
Aulostomus chinensis

Fistularia chinensis Linneaus, 1766: 515 (India).

Aulostomus chinensis. — Waite, 1900: 198 (Lord Howe Island).

Aulostomus chinensis waitei Whitley, 1940: 413 (Lord Howe Island).

Rare; 3 specimens taken plus 3 additional (including holotype of nominal subspecies) at AMS. Widespread in the tropical Indo-Pacific including eastern Australia.

FISTULARIIDAE . . . FLUTEMOUTHS (J.R.P.)
Fistularia commersoni

Fistularia commersonii Rüppell, 1835: 142 (Red Sea).

Fistularia depressa. — Waite, 1898: 61 (Lord Howe Island).

Small individuals common in the lagoon. Widespread in the tropical Indo-Pacific including eastern Australia. The correct name and distribution for this species, *F. petimba* of most authors, was provided by R. Fritzsche (pers. comm.).

MACRORAMPHOSIDAE . . . BELLOWS FISHES (J.R.P.)
Macroramphosus gracilis

Centriscus gracilis Lowe, 1839: 86 (Madeira).

Macrorhamphosus gracilis. — Waite, 1900: 199 (Lord Howe Island).

Macroramphosus molleri Whitley, 1930: 117 (New South Wales).

Two Lord Howe Island specimens in AMS collections (I. 4340, IA. 4768). Mohr (1937: 37) placed Whitley's *M. molleri* in the synonymy of *M. scolopax*. The holotype (AMS B. 7163) is the same specimen figured by Waite (1899: Pl. 7, fig. 2), which Mohr listed as a synonym of *M. gracilis*. The holotype and 2 Lord Howe Island specimens (both less than 30 mm SL) all have a short second dorsal spine which is closer to the head than the caudal base. Circumglobal distribution in tropical and subtropical waters including eastern Australia.

SYNGNATHIDAE . . . PIPEFISHES AND SEA HORSES (J.R.P.)
Hippocampus planifrons?

Hippocampus planifrons Peters, 1877: 851 (north-west Australia).

Hippocampus abdominalis (non Lesson, 1827). — Ogilby, 1889a: 72 (Lord Howe Island).

Only 1 Lord Howe Island specimen at AMS (AMS I. 1959) collected in 1888, a large male 230 mm long and presumably the basis of Ogilby's record. However, the size is larger than recorded for this species and the meristics (D. 19, BR 11, TR 41) also match *H. trimaculatus* given by Weber and de Beaufort (1922) from the south-west Pacific. Recorded only from eastern and western Australia.

Hippocampus sp. A

Hippocampus punctulatus. — Ogilby, 1889b: 732 (Lord Howe Island).

The only specimen from Lord Howe Island was registered in the Queensland Museum (QM I. 1008) in 1913 as *H. kuda,* and could not be located in 1973.

Hippocampus sp. B

Hippocampus histrix. — Whitley and Allan, 1958: Fig. 6 (3) (Lord Howe Island).

The small size of the only specimen (AMS IA. 2424) collected in 1926 precludes accurate identification. The short snout and 38 tail rings are not characteristic of *H. histrix.*

Micrognathus boothae

Micrognathus boothae Whitley, 1964b: 162 (Lord Howe Island).

Known from the holotype (AMS IB. 5992) collected in 1962, and a second specimen recently recorded from Fiji (Dawson and Randall, 1975).

Solegnathus dunckeri

?Solenognathus sp., Ramsay, 1888: 32 (Lord Howe Island).

?Solenognathus spinosissimus. — Ogilby, 1889a: 72 (Lord Howe Island).

Solegnathus dunckeri Whitley, 1927a: 294 (Lord Howe Island).

Represented at AMS by the holotype (AMS I. 14336) and 2 other specimens mentioned in the original description (IA. 2428-9). The basis of the earlier records is unknown. Recorded only from eastern Australia and Lord Howe Island.

Syngnathus howensis

Parasyngnathus howensis Whitley, 1948: 77 (Lord Howe Island).

Previously known only from the male holotype. Eight females (66-90 mm SL) collected in the lagoon in .5-2 m and 2 females (77-91 mm SL) collected in 1966 by H. Cogger. Meristic ranges are dorsal 27-29, body rings 16-17, tail rings 34-36, subdorsal rings ½-1¼+5½-7; colouration distinctive, each ring plate with a few dark spots and narrow lines. The species appears closely related to *S. caldwelli* (Herald and Randall, 1972) from Easter Island, from which it differs slightly in counts and colouration. Known only from Lord Howe Island.

SCORPAENIDAE . . . SCORPION FISHES (G.R.A.)

*Ablabys slacksmithi**

Amblyapistis slacksmithi Whitley, 1958: 45 (Heron Island, Great Barrier Reef).

One specimen (40 mm SL) in the AMS collection (I. 17043-001) taken in shallow water by H. Cogger in 1966. Previously known only from the holotype.

*Dendrochirus brachypterus**

Pterois brachyptera Cuvier (in Cuvier and Valenciennes), 1829: 270 (no locality given).

Three unreported specimens at AMS (I. 7865, IB. 5713, IB. 6338) from Lord Howe Island. Widespread in the Indo-W. Pacific including eastern Australia.

Dendrochirus zebra

Pterois zebra Cuvier (in Cuvier and Valenciennes), 1829: 270 (Mauritius).

Pterois zebra. — Ramsay, 1888: 32 (Lord Howe Island).

Specimens reported by Waite examined at AMS. Widespread in the tropical Indo-Pacific including eastern Australia.

Insopiscis altipinnis

Cocotropus altipinnis Waite, 1903: 41 (Lord Howe Island).

Known only from the holotype, a specimen 34 mm SL in the AMS collection.

Pterois volitans

Gasterosteus volitans Linnaeus, 1758: 296 (Ambon).

Pterois volitans. — Ogilby, 1889a: 60 (Lord Howe Island).

Observed occasionally (one collected and deposited in BPBM) in lagoon and outer reef area in 2-35 m. Widespread in the tropical Indo-Pacific including eastern Australia; a protected species at Lord Howe Island, where it is more common than at other localities known to the authors.

Scorpaena cookii

Scorpaena cookii Günther, 1874: 8 (Kermadec Islands).

Scorpaena cookii. — Ogilby, 1889b: 155 (Lord Howe Island).

Common in lagoon and outer reef habitats in 2-35 m. Reported also from the Kermadec Islands, Norfolk Island, and New South Wales.

*Scorpaenodes littoralis**

Sebastella littoralis Tanaka, 1917a: 10 (Misaki, Japan).

Several specimens collected with rotenone in lagoon and outer reef habitats in 3-20 m. Probably widespread in the western Pacific.

*Scorpaenodes parvipinnis**

Scorpaena parvipinnis Garrett, 1863: 105 (Hawaiian Islands).

One specimen collected with rotenone at North Rock in 25 m. Widespread in the tropical Indo-W. Pacific.

Scorpaenodes scaber

Sebastes scaber Ramsay and Ogilby, 1885: 577 (Port Jackson, New South Wales).

Scorpaena scabra. — Ogilby, 1889a: 60 (Lord Howe Island).

Several specimens collected with rotenone in lagoon and outer reef habitats in 2-25 m. Known also from New South Wales.

Scorpaenopsis sp.*

One specimen collected with quinaldine outside lagoon in 15 m.

TRIGLIDAE . . . GURNARDS (J.R.P.)
*Chelidonichthys kumu**

Trigla kumu Lesson, 1830: 214 (New Zealand).

One unrecorded specimen (AMS IA. 3256) collected in 1927 by R. Baxter. Widespread in Indo-W. Pacific from South Africa to Japan including Australia and New Zealand.

PLATYCEPHALIDAE . . . FLATHEADS (J.R.P.)
*Platycephalus caeruleopunctatus**

Platycephalus caeruleopunctatus McCulloch, 1922: 120 (New South Wales).

One unrecorded specimen (AMS I. 10655) collected in 1926 by R. Pedley. Known from eastern Australia.

DACTYLOPTERIDAE . . . FLYING GURNARDS (J.R.P.)
*Dactyloptena orientalis**

Dactylopterus orientalis Cuvier (in Cuvier and Valenciennes), 1829: 134 (Indian Ocean).

Three juveniles dipnetted over deep water. Widespread in the tropical Indo-W. Pacific including eastern Australia. Recently recorded also from northern New Zealand (Moreland, 1975).

PEGASIDAE . . . SEA MOTHS (G.P.W.)
Pegasus draconis

Pegasus draconis Linnaeus, 1766: 418 (India).

Pegasus draco. — Ogilby, 1890: 1028 (Lord Howe Island).

One specimen collected from beach in February, 1974. The specimen recorded by Ogilby is not now in AMS. His record, in a short paper on lizards and fishes, has been overlooked by later authors. Known from India to Japan, and eastern Australia.

SERRANIDAE . . . GROUPERS AND ROCK CODS (D.F.H.)
Acanthistius cinctus

Plectropoma cinctum Günther, 1859: 162 (Norfolk Island).

Plectropoma cinctum. — Ogilby, 1889a: 53 (Lord Howe Island).

Observed occasionally (seven collected) in lagoon and outer reef habitats in 2-30 m. Known from Lord Howe Island, Norfolk Island, Kermadec Islands, northern New Zealand, and New South Wales.

*Acanthistius serratus**

Plectropoma serratum Cuvier (in Cuvier and Valenciennes), 1828: 399 (Western Australia).

One specimen at AMS (AMS I. 10697) collected before 1910. The colour pattern is identical with that of specimens from New South Wales. The species was originally

described from a spotted individual from Western Australia. In the limited material available to us from Western Australia the juveniles have a few spots, but the adults are banded. The name *A. serratus* is provisionally used here for the east Australian spotted form. Should this form prove distinct the next available name is *Acanthistius ocellatus* Günther with New South Wales as the type locality. Also known from southern Queensland to eastern Victoria and Western Australia.

*Cephalopholis argus**

Cephalopholis argus Bloch and Schneider, 1801: 311 (E. Indies).

Rare, 1 specimen speared outside the lagoon off Phillip Point in 15 m. Widespread and abundant for a serranid in the tropical Indo-W. Pacific, including eastern Australia.

Cephalopholis sexmaculatus

Serranus sexmaculatus Rüppell, 1828: 107 (Red Sea).

Serranus ouatalibi. — Günther, 1859: 120 (in part, Lord Howe Island).

Serranus punctatus. — Boulenger, 1893: 183 (in part, Lord Howe Island).

Cephalopholis coatesi Whitley, 1937a: 124 (Townsville, Queensland).

The specimens upon which this record is based are the first recorded from Lord Howe Island (Günther, 1859). They have been recorded under two names of Western Atlantic species which are now regarded as *Cephalopholis fulva*. Two of the specimens were borrowed from the British Museum and do not belong to *C. fulva*. The specimens have 14 and 15 dorsal rays and 17 or 18 pectoral rays. They are both dried skins and have faded considerably. Each has a dark mark at the top of the caudal peduncle suggestive of a saddle. There are 2 faint spots at the anterior tip of the lower jaw and the body and head are covered with small blue spots. One specimen has faint dark markings along the back suggestive of the dark spots of *C. sexmaculatus*. The specimens are 195 and 237 mm SL. The species was described from the Great Barrier Reef as *C. coatesi* by Whitley. Widespread in tropical Indo-W. Pacific.

*Ellerkeldia huntii**

Plectropoma huntii Hector, 1875: 240 (Chatham Island).

Several specimens collected in 20-30 m outside the lagoon. The species is closely related to *E. maccullochi* from New South Wales, but differs in having narrower bands on the body and in having a vertical bar at the end of the caudal peduncle, which is lacking in *E. maccullochi*. Known from Lord Howe Island and New Zealand.

Epinephelus daemelii

Serranus daemelii Günther, 1876: 391 (New South Wales).

Serranus daemelii. — Ogilby, 1889a: 53 (Lord Howe Island).

Serranus fuscoguttatus. — Ogilby, 1889a: 53 (Lord Howe Island).

Epinephelus forsythi Whitley, 1937: 222 (Lord Howe Island).

Common in lagoon and outer reef habitats in 2-45 m. Ogilby (1889) recorded specimens of over 35 kg from Lord Howe Island and 50 kg individuals from northern New South Wales. The angling record is 64 kg. Several earlier specimens including the type of *E. forsythi* are at AMS. Whitley (1937) described specimens of *E. microdon* from Middleton and Elizabeth

reefs as *E. forsythi* and he figured one individual of *E. daemelii* from Lord Howe Island. He selected the specimen recorded by Ogilby (1889) as *E. fuscoguttatus* (AMS I. 1793) as the holotype of *E. forsythi*. This species has been recorded from New Guinea, but no specimens have been located from farther north than southern Queensland. The New Guinea record probably represents a misidentification. Known from southern Queensland, New South Wales, Lord Howe and Norfolk islands, and northern New Zealand.

Epinephelus fasciatus

Perca fasciata Forsskål, 1775: 40 (Red Sea).

Epinephelus fasciatus. — Waite, 1901: 200 (Lord Howe Island).

Four individuals observed (1 collected) outside the lagoon in 8-25 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Epinephelus hoedti**

Serranus hoedti Bleeker, 1855a: 406 (Ambon).

One specimen (AMS I. 7854) from Lord Howe Island collected before 1907. Widespread in the Indo-W. Pacific including eastern Australia.

*Epinephelus howlandi**

Serranus howlandi Günther, 1873: 8 (Howland Island).

One specimen 255 mm at AMS (I. 6019), collected before 1903, is identified here after the description and figure of *Serranus howlandi* of Günther (1873). Some workers have regarded the species as a synonym of *E. corallicola*, while others have treated it as a synonym of *E. maculatus*. The specimen agrees with Günther's figure, except that there are faint spots on the pectoral fin. The gill rakers are shorter than the gill filaments except at the angle, the spots are large and there are 16 dorsal rays. In southern Queensland and northern New South Wales this species can easily be confused with the coral rock cod (*E. corallicola* of Australian authors). *E. howlandi* differs from *E. corallicola* in having a smaller posterior nostril and lacking scales on the maxilla. Widespread in the tropical South Pacific.

*Epinephelus medurensis**

Serranus medurensis Günther, 1873: 8 (Marshall Islands).

One specimen speared in the lagoon at Comet's Hole. Widespread in the tropical Pacific.

*Epinephelus melanostigma**

Epinephelus melanostigma Schultz, 1953: 348-351 (Swains Island, Samoan Group).

One specimen taken by spear. It is similar to *E. howlandi*; however, the large spot on the back extending onto the dorsal fin is more prominent and the hexagonal spots form a network on the body. In addition, the specimen of *E. howlandi* has smaller round spots which are more widely spaced. Widespread in the tropical western Pacific.

Epinephelus merra

Epinephelus merra Bloch, 1793: 17 (Japanese Sea).

Epinephelus merra. — Ogilby, 1899: 730 (Lord Howe Island).

Not common at Lord Howe, only a few individuals observed in the lagoon in 2-5 m, 1 collected. Widespread and generally abundant in the tropical Indo-W. Pacific including eastern Australia.

*Epinephelus microdon**

Serranus microdon Bleeker, 1856a: 86 (Java).

Epinephelus forsythi Whitley, 1937: 322 (in part, Middleton and Elizabeth Reefs specimens only).

Randall (1964) indicated that this species has been confused with *E. fuscoguttatus*. One specimen (AMS I. 5225) was collected from Lord Howe Island in 1902. The species is similar to *E. daemelii*, but differs in having spots on the ventral surface of the body and on the anal and caudal fins and in having the maxilla scaled. Widespread in the tropical Indo-W. Pacific.

Epinephelus rhyncholepis

Serranus rhyncholepis Bleeker, 1852b: 749 (Indonesia).

Epinephelus rhyncholepis. — Waite, 1904a: 165 (Lord Howe Island).

Several specimens were taken during a local fishing competition. Previously the species was known from Lord Howe Island from 2 specimens (AMS I. 5669 and I. 6025). Widespread in the tropical western Pacific.

*Franzia squamipinnis**

Serranus (Anthias) squamipinnis Peters, 1855: 236 (Mozambique).

Observed occasionally (6 collected) outside the lagoon in 10-30 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Pseudanthias sp.

Anthias cichlops (non Bleeker). — Ogilby, 1888b: 741 (Lord Howe Island).

Pseudanthias hypselosoma (non Bleeker). — Waite, 1904: 204 (Lord Howe Island).

Large aggregations frequently observed outside the lagoon around rocky islets in 10-45 m. This species is probably undescribed. Ogilby (1888b) identified the species as *cichlops* Bleeker (described from Sumatra) on the basis of a single specimen washed up on the beach. Our material differs from the description of *cichlops* given by Weber and de Beaufort (1931), who examined the type. It is deeper bodied (3.0 in SL compared with "somewhat more than 3") and has a higher lateral line scale count (46 [1], 47 [2], 48 [3], and 50 [6] compared with 45 for *cichlops*). Waite (1904a) reidentified Ogilby's specimen as *Pseudanthias hypselosoma*, another Bleeker species originally described from New Guinea. This species differs from our material by having fewer pectoral rays (17 compared with 19), fewer lateral line scales (44-46 compared with counts given above), and is deeper bodied (2.5 in SL compared with 3.0). The Lord Howe Island species exhibits striking sexual dichromatism. Males are mostly fuschia coloured with a yellowish head, red pelvics and median fins, and a large yellowish patch covering most of the basal half of the caudal fin. Females are fuschia on the anterior half of the body and yellow on the posterior half with yellow fins. This species has also been taken at One Tree Island, Capricorn Group, Great Barrier Reef and was observed by G. Allen in 30 m off the southern tip of New Caledonia. Two lots containing 93 specimens, 71-105 mm SL, deposited at AMS and BPBM. The largest lot, AMS I. 17366-021, includes 72 specimens, 80-105 mm SL.

Trachypoma macracanthus

Trachypoma macracanthus Günther, 1859: 167 (Norfolk Island).

Trachypoma macracanthus. — Ramsay, 1888: 32 (Lord Howe Island).

Extremely abundant in lagoon and outer reef habitats to depths of 45 m. Known from New South Wales, Lord Howe Island, Norfolk Island, Kermadec Islands, northern New Zealand and Easter Island.

PSEUDOPLESIOPIDAE . . . FALSE PRETTYFINS (D.F.H.)
Pseudoplesiops sp.*

Eight specimens were collected from coral in the lagoon and from 20-25 m outside the lagoon. This species is similar to *P. sargenti* Schultz in lacking a lateral line and an opercular spot and in having palatine teeth. It differs from *P. sargenti* in having 26 dorsal rays and a fleshy keel in the intermandibular space. Six lots containing 22 specimens deposited at AMS and BPBM. The largest lot, BPBM 14925, includes 8 specimens 28-32 mm SL.

GRAMMISTIDAE . . . SOAP FISHES (G.R.A.)
*Grammistes sexlineatus**

Perca sexlineata Thunberg, 1792: 142 (E. Indies).

One individual observed outside the lagoon by J.E.R. in 16 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

PSEUDOGRAMMIDAE . . . DOTTYBACKS (G.R.A.)
*Pseudogramma polyacantha**

Pseudochromis polyacanthus Bleeker, 1856b: 375 (Ternate).

One specimen collected with rotenone at North Islet in 25 m. Widespread and abundant in the Indo-W. Pacific.

PLESIOPIDAE . . . PRETTYFINS (D.F.H.)
Plesiops sp.

Plesiops nigricans (non Rüppell). — Ramsay, 1888: 32 (Lord Howe Island).

Common in coral outside the lagoon in 2-25 m. It also has been taken at One Tree Island and Heron Island on the Great Barrier Reef, Norfolk Island and New Caledonia. The species is similar to *P. caeruleolineatus,* but differs in having 12 dorsal spines. It will be described by J. Randall and P. Fourmanoir. Six lots containing 37 specimens deposited at AMS and BPBM. The largest lot, AMS I. 17363-004, includes 23 specimens, 52-100 mm SL.

ACANTHOCLINIDAE . . . BANDED LONG-FIN (B.C.R.)
Belonepterygion fasciolatum

Acanthoclinus fasciolatus Ogilby, 1889a: 63 (Lord Howe Island).

Common in lagoon and outer reef habitats in 1-25 m. Known also from tropical eastern Australia.

THERAPONIDAE . . . GRUNTERS (J.R.P.)
Therapon jarbua

Sciaena jarbua Forsskål, 1775: 50 (Red Sea).

Terapon jarbua. — Waite, 1900: 200 (Lord Howe Island).

The basis of Waite's record, apparently the only specimen collected from Lord Howe Island, was sent on exchange to an unnamed U.S. institution in 1896. Widespread in the tropical Indo-W. Pacific including eastern Australia.

KUHLIIDAE . . . FLAG-TAIL PERCH (G.R.A.)
Kuhlia mugil

Sciaena mugil Forster (in Bloch and Schneider), 1801: 541 (Tahiti).

Kuhlia taeniura. — Waite, 1894: 217 (Lord Howe Island).

Several juveniles collected at Ned's Beach in 0-2 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

PRIACANTHIDAE . . . RED BULLSEYES (G.R.A.)
*Priacanthus cruentatus**

Labrus cruentatus Lacepede, 1800: 452 (Martinique).

Several specimens collected with a gill net in the lagoon in 2 m. Circumglobal distribution including eastern Australia.

APOGONIDAE . . . CARDINAL FISHES (G.R.A.)
Apogon chrysurus

Apogon chrysurus Ogilby, 1889a: 54 (Lord Howe Island).

Several specimens collected in both lagoon and outer reef habitats in 2-25 m. Known from Lord Howe Island, New South Wales, and Queensland.

*Apogon coccineus**

Apogon coccineus Rüppell, 1835: 88 (Red Sea).

Several specimens collected in rocky areas outside the lagoon in 1-4 m. Eighteen unrecorded specimens from the Capricorn Group, Queensland in the AMS collection, new record for Australia. Widespread in the tropical Indo-W. Pacific. *Apogon erythrinus* Snyder, type locality Hawaii, is a synonym (T. H. Fraser, personal communication).

Apogon norfolcensis

Apogon norfolcensis Ogilby, 1888a: 990 (Norfolk Island and Lord Howe Island).

Abundant in both lagoon and outer reef habitats in 2-25 m. Previously known only from Lord Howe and Norfolk islands. Recently discovered in a collection from New Caledonia by T. H. Fraser (personal communication).

Apogon sp. A*

Large aggregations encountered in the lagoon and occasionally outside in rocky areas. This species, which may be undescribed (T. H. Fraser, personal communication), reaches a standard length of approximately 90-100 mm and is characterized by a pale ground colour with 3 narrow stripes on the upper sides and a dark spot at the base of the middle caudal rays. Five lots containing 36 specimens, 19-105 mm SL, deposited at AMS and BPBM. The largest lot, AMS I. 17362-032, includes 30 specimens, 20-75 mm SL.

Apogon sp. B*

Pristiapogon diversus. — Whitley (non Smith and Radcliffe), 1964: 166 (Kenn Reef, Coral Sea).

Very abundant in rocky areas outside the lagoon in 2-25 m. Infrequently encountered in the lagoon. This is another species, which according to T. H. Fraser, may be undescribed. He stated (personal communication) that it is closely related to *A. diversus* (Smith and Radcliffe). It attains a maximum standard length of approximately 100 mm and is largely pale with a dark spot at the base of the middle caudal rays and narrow dark upper and lower caudal margins. Thirteen lots containing 100 specimens, 17-110 mm SL, deposited at AMS and BPBM. The largest lot, AMS I. 17364-016, includes 69 specimens, 25-45 mm SL.

*Cheilodipterus macrodon**

Cheilodipterus macrodon Lacepède, 1802: 252 (Réunion Island).

Several individuals observed (one collected) outside the lagoon in caves in 8-15 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Cheilodipterus quinquelineatus**

Cheilodipterus quinquelineatus Cuvier (in Cuvier and Valenciennes), 1828: 167 (Bora Bora).

Observed occasionally (several collected) in coralliferous areas of the lagoon in 2-8 m. Classified in *Paramia* by some authors. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Fowleria aurita?**

Apogon auritus Cuvier (in Cuvier and Valenciennes), 1831: 443 (Mauritius).

Four specimens collected in the lagoon in 1-2 m. We provisionally identify these as *F. aurita,* but Fraser (1972) emphasized a need for revision of *Fowleria* as indicated by the conflicting classifications of Lachner (1953) and Smith (1961). Widespread in the tropical Indo-W. Pacific including eastern Australia.

Howella brodiei

Howella brodiei Ogilby, 1899: 735 (Lord Howe Island).

The only Lord Howe Island specimen is the holotype (QM. 777). The family allocation of this species is currently under study. Widespread in the tropical Indo-W. Pacific (G. Mayer, personal communication), midwater.

SILLAGINIDAE . . . WHITINGS (J.R.P.)

Sillago ciliata

Sillago ciliata Cuvier (in Cuvier and Valenciennes), 1829: 415 (Tasmania).

Sillago ciliata. — Waite, 1901: 47 (Lord Howe Island).

Two large specimens collected in the lagoon over sand. Also known from Australia and Melanesia.

BRANCHIOSTEGIDAE ... TILE FISHES (J.R.P.)

Malacanthus brevirostris

Malacanthus brevirostris Guichenot, 1848b: 14 (Madagascar and Bourbon).

Malacanthus hoedti. — Ogilby, 1899: 741 (Lord Howe Island).

One specimen observed by W. Doak outside the lagoon in 45 m. Two Lord Howe Island specimens at AMS (I. 5373, I. 14347). Dooley (1974) found that *M. brevirostris* was a senior synonym of *M. hoedti.* Widespread in the tropical Indo-W. Pacific including eastern Australia.

LABRACOGLOSSIDAE . . . KNIFE FISHES (J.R.P.)

Bathystethus cultratus

Sciaena cultrata Bloch and Schneider, 1801: 343 (Norfolk Island).

Platystethus guentheri Ogilby, 1889b: 157 (Lord Howe Island).

Three specimens taken in the surge zone outside lagoon. Known from New South Wales (new record for Australia, based on a 230 mm specimen, AMS IB. 8014, speared off Port Stephens, N.S.W. in 1967), Lord Howe and Norfolk islands. Recently recorded also from northern New Zealand (Moreland, 1975).

Labracoglossa nitida

Labracoglossa nitida McCulloch and Waite, 1916: 439 (Lord Howe Island).

Several specimens collected at North Rock in 25 m. Known only from New South Wales, Lord Howe and Norfolk islands. Recently recorded also from northern New Zealand (Moreland, 1975).

ECHENEIDAE . . . SUCKER FISHES (J.R.P.)

*Echeneis naucrates**

Echeneis naucrates Linnaeus, 1758: 261 (Indian seas).

One specimen at AMS (I. 13690) taken by R. Pedley in 1915; the host was not recorded. Worldwide distribution including eastern Australia.

*Remora brachyptera**

Echeneis brachyptera Lowe, 1839: 89 (Madeira).

Two specimens taken from a 120 kg black marlin (*Makaira indica*) caught between Lord Howe Island and Ball's Pyramid. Worldwide distribution including eastern Australia.

Remora remora

Echeneis remora Linnaeus, 1758: 260 (Indian seas).

Echeneis remora. — Whitley, 1949: 23 (Lord Howe Island).

One registered specimen (AMS IA. 1429) taken by R. Baxter in 1923; no host recorded. The specimen is currently on loan to Dr. E. A. Lachner of the USNM, who has confirmed the identification. Worldwide distribution including eastern Australia.

CARANGIDAE . . . JACKS AND TREVALLYS (B.C.R.)

*Alectis ciliaris**

Zeus ciliaris Bloch, 1787a: 36 (East Indies).

Two unreported specimens (AMS I. 2452-3) collected previously at Lord Howe Island. Worldwide tropical distribution including eastern Australia.

Caranx (Pseudocaranx) nobilis

Caranx nobilis Macleay, 1881: 532 (Port Jackson).

Caranx georgianus (non Cuvier, 1833). — Ogilby, 1889a: 61 (Lord Howe Island).

Common in lagoon and outer reef habitats in 2-45 m. W. F. Smith-Vaniz (pers. comm.) reports that the Lord Howe Island specimens appear to be identical with specimens from Sydney Harbour, the type locality of *Caranx nobilis* Macleay, 1881. This species has been confused with *C. georgianus* Cuvier, 1833.

*Caranx (Carangoides) orthogrammus**

Caranx orthogrammus Jordan and Gilbert, 1882: 226 (Revillagigedos Islands).

Two unreported specimens (AMS I. 12859 and I. 4120) were collected previously at Lord Howe Island and labelled as "*Caranx ferdau*" in the collection. W. F. Smith-Vaniz, who provided the identification of this species, pointed out that the true *ferdau* lacks the series of 3-5 small yellow spots on the sides of the body which characterize *orthogrammus* and has fewer rakers on the first gill arch. It tends also to inhabit continental waters whereas *orthogrammus* has an insular distribution. *C. orthogrammus* is widespread in the tropical Indo-Pacific.

Decapterus leptosomus

Decapterus leptosomus Ogilby, 1898c: 760 (Port Jackson, New South Wales).

Decapterus sanctaehelena (non Cuvier, 1833). — Waite, 1900: 194 and 200 (Lord Howe Island).

Schools occasionally observed outside the lagoon in 10-15 m. Previously recorded as *D. sanctaehelenae*, a species which is restricted to the Atlantic. *Decapterus koheru* (Hector, 1875), described from New Zealand, may prove to be a senior synonym of *D. leptosomus*. Widespread in the south-western Pacific including eastern Australia.

Elagatis bipinnulatus

Seriola bipinnulata Quoy and Gaimard, 1824: 363 (Îles des Papoves, Indonesia).

Elagatis bipinnulatus. — Whitley, 1962: 115 (Lord Howe Island).

Recorded from Lord Howe Island by Whitley (1962) on the basis of a single specimen taken off Ball's Pyramid in 1938. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Naucrates ductor**

Gasterosteus ductor Linnaeus, 1758: 295 (pelagic).

Rare, one beach-stranded juvenile from the eastern side of the island. Worldwide distribution including eastern Australia.

*Seriola dumerili**

Caranx dumerili Risso, 1810: 175 (Mediterranean).

Several specimens previously taken from Lord Howe Island at AMS. Worldwide distribution including eastern Australia, where it has been recorded as *S. simplex* Ramsay and Ogilby (1886).

Seriola lalandi

Seriola lalandi Valenciennes (in Cuvier and Valenciennes), 1833: 208 (Brazil).

Seriola lalandi. — Ramsay, 1888: 32 (Lord Howe Island).

Common outside the lagoon, especially around offshore rocky islets in 1-45 m. The most important food fish of the Lord Howe Islanders, who call it kingfish. Worldwide in the southern hemisphere including eastern Australia.

*Seriola rivoliana**

Seriola rivoliana Valenciennes (in Cuvier and Valenciennes), 1883: 207 (type locality uncertain).

Observed occasionally at North Islet in 25-45 m. Only one individual taken (head only in collection). Worldwide distribution including eastern Australia.

Trachinotus baillonii

Caesiomorus baillonii Lacepède, 1802: 92-93 (Madagascar).

Trachinotus baillonii. — Waite, 1903: 25 (Lord Howe Island).

Widespread in the tropical western Pacific including eastern Australia.

Trachinotus botla

Scomber botla Shaw, 1803: 591 (Vizagapatam).

Trachinotus russelli (non Cuvier). — Ogilby, 1890: 1028 (Lord Howe Island).

Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Trachurus mccullochi**

Trachurus mccullochi Nichols, 1921: 479 (South Australia).

Rare, 1 specimen collected outside the lagoon in 15 m. Known also from eastern and western Australia.

CORYPHAENIDAE . . . DOLPHIN FISHES (J.R.P.)

*Coryphaena equiselis**

Coryphaena equiselis Linnaeus, 1758: 261 (high seas).

Five juveniles dipnetted over deep water. Two juveniles (AMS I. 15671-001) collected near Sydney by Collettes in 1970; new record for Australia. Apparently circumglobal in tropical and subtropical oceanic waters.

Coryphaena hippurus

Coryphaena hippurus Linnaeus, 1758: 261 (open seas).

Corphaena hippurus dampieri Whitley, 1939: 271 (Lord Howe Island).

The holotype of the nominal subspecies (AMS IA. 7561) is the only specimen from Lord Howe Island. Circumglobal in tropical and subtropical oceanic waters including eastern Australia.

BRAMIDAE . . . PELAGIC BREAM (J.R.P.)

Brama brama

Sparus brama Bonnaterre, 1788: 104 (England).

Brama rayi. — Ogilby, 1890: 1028 (Lord Howe Island).

One 420 mm specimen found on Lagoon Beach after a cyclone in September 1972. Mead (1972) considered *B. raii* a probable synonym of *B. brama*. North Atlantic and southern oceans including eastern Australia.

ARRIPIDAE . . . AUSTRALIAN SALMON (B.C.R.)

Arripis trutta

Sciaena trutta Bloch and Schneider, 1801: 542 (Queen Charlotte Sound, New Zealand).

Arripis salar. — Ramsay, 1888: 32 (Lord Howe Island).

Several specimens previously taken from Lord Howe Island are deposited at AMS. Fairbridge (1951) has produced evidence of separate breeding populations in eastern and western Australia and Whitley (1951a) regarded these as subspecies, according the subspecific name *marginata* to the east Australian form. On the basis of differences in gill raker counts, Fairbridge (1951) suggested that specimens from Lord Howe Island might belong to a different breeding population. However, gill raker counts of Lord Howe Island specimens at AMS are within the range given by Malcolm (1959) for the east Australian subspecies and we provisionally regard the two populations as the same. New Zealand specimens also seem to be identical with the east Australian form (Fairbridge, 1951). Known also from eastern and western Australia, Elizabeth and Middleton reefs, Norfolk Island, Kermadec Islands, and New Zealand.

LUTJANIDAE . . . HUSSARS (B.C.R.)

*Lutjanus amabilis**

Genyorage amabilis De Vis, 1885: 145 (Moreton Bay, Queensland).

Apparently rare, recorded here on the basis of a colour transparency of 3 specimens caught by line fishing off North Rock by Mr. S. Bradshaw, January 1974. Known also from eastern Australia.

*Lutjanus bohar**

Sciaena bohar Forsskål, 1775: 46 (Red Sea).

Rare, only 2 sightings (B. Goldman and J. Randall) outside the lagoon to 30 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Lutjanus kasmira

Sciaena kasmira Forsskål, 1775: 46 (Red Sea).

Genyorage bengalensis. — Waite, 1904a: 166 (Lord Howe Island).

Rare, 1 specimen collected in the lagoon in 3 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Paracaesio pedleyi

Paracaesio pedleyi McCulloch and Waite, 1916: 440 (Lord Howe Island).

Common outside the lagoon in deeper water (15-35 m). McCulloch and Waite distinguished this species from *Paracaesio xanthurus* Bleeker (1875) on the basis of colour and differences in the shape of the spinous dorsal fin. Further studies are necessary, however, since the differences are slight. Known also from eastern Australia.

NEMIPTERIDAE . . . CORAL BREAM (G.R.A.)

*Scolopsis bilineatus**

Anthias bilineatus Bloch, 1793: 3 (Japan).

One specimen speared in the lagoon in 4 m. No others seen. Widespread in the tropical Indo-W. Pacific including eastern Australia.

POMADASYIDAE . . . SWEETLIPS (G.R.A.)

*Plectorhynchus punctatissimus**

Diagramma punctatissimum Playfair, 1867: 851 (Seychelles).

Two subadults ("pica" colour form) collected outside the lagoon in 10-35 m and 1 adult in 20 m. Widespread in the tropical Indo-W. Pacific.

*Spilotichthys pictus**

Diagramma pictum Thunberg, 1792: 141 (no locality given).

Several individuals observed (1 collected) in the lagoon in about 5 m. Indian Ocean and tropical western Pacific including eastern Australia.

LETHRINIDAE . . . EMPERORS (B.C.R.)

Gymnocranius sp.*

Three specimens observed at Ball's Pyramid in 30-35 m. One specimen, 232 mm SL, deposited at BPBM (14908).

Lethrinus nebulosus

Sciaena nebulosa Forsskål, 1775: 52 (Red Sea).

Lethrinus opercularis. — Ogilby, 1889a: 58 (Lord Howe Island).

Rare, 1 beach stranded specimen collected at Blenkinthorpe Beach. Another specimen (AMS I. 1809) in the Australian Museum. Indian Ocean and tropical western Pacific, including eastern Australia.

*Lethrinus chrysostomus**

Lethrinus chrysostomus Richardson, 1848: 118 (Norfolk Island).

Rare, 1 specimen collected in the lagoon during a fishing competition. Known also from New Guinea, northern and eastern Australia, and Norfolk Island.

SPARIDAE . . . SNAPPERS (B.C.R.)

Chrysophrys auratus

Sciaena aurata Forster (in Bloch and Schneider), 1801: 266 (New Zealand).

Pagrus unicolor. — Ogilby, 1889a: 58 (Lord Howe Island).

The specimens upon which Ogilby's record is based have not been located. However, we have seen photographs of the species taken at Lord Howe Island and local fishermen indicate that it is caught in some years. On the basis of osteology, Yasuda and Mizuguchi (1969) have shown that the eastern Australian species, *C. guttulatus,* and the New Zealand species, *C. auratus,* are distinct. Should Lord Howe Island specimens prove to be the same as the Australian form, the name *guttulatus* will apply. However, as we have not been able to examine specimens from Lord Howe Island, we retain the name *auratus.*

MULLIDAE . . . GOAT FISHES (D.F.H.)

*Mulloidichthys flavolineatus**

Mullus flavolineatus Lacepède, 1802: 384, 406 (Mauritius).

Rare, 1 specimen of this distinctive species, often recorded as *M. samoensis,* collected in the lagoon. Also observed outside in 25-35 m. Widespread in the tropical Indo-W. Pacific.

*Mulloidichthys vanicolensis**

Upeneus vanicolensis Valenciennes (in Cuvier and Valenciennes), 1831: 521 (Vanicolo, Santa Cruz Islands).

Observed occasionally (4 collected) outside the lagoon in 20-35 m. The species is often recorded as *M. auriflamma* or *M. flavolineatus.* Widespread in the tropical Indo-W. Pacific.

*Parupeneus pleurospilos**

Upeneus pleurospilos Bleeker, 1853a: 110 (Ambon).

Two individuals sighted on silty sand bottom in 8 m in Comet's Hole, 1 speared (BPBM 14894, 234 mm SL). Occurs in tropical western Pacific, ranging north to Japan.

Parupeneus pleurostigma

Upeneus pleurostigma Bennett, 1830: 59 (Mauritius).

Upeneus pleurostigma. — Waite, 1901: 37 (Lord Howe Island).

Observed, but none collected in 1973. A single specimen from Lord Howe Island (AMS I. 4686) recorded and figured by Waite (1901). Widespread in the tropical Indo-W. Pacific.

*Parupeneus porphyreus**

Pseudupeneus porphyreus Jenkins, 1903: 454 (Honolulu, Hawaii).

Four specimens collected outside the reef. The caudal peduncle spot is fainter in this species than in *P. signatus.* Widespread in tropical Indo-W. Pacific.

Parupeneus signatus

Upeneus signatus Günther, 1867: 59 (New South Wales).

Hypeneus signatus. — Ogilby, 1889: 56 (Lord Howe Island).

Large schools of juveniles and adults common in the deeper holes in the lagoon. Also observed outside the lagoon down to 30 m. The species is readily distinguished by the black spot dorsally on the caudal peduncle. Doak (1972) recorded this species from New Zealand as *P. porphyreus. P. signatus* is closely related to *P. porphyreus,* but has 16 pectoral rays rather than 15. Known from New South Wales, Lord Howe Island, Kermadec Islands, and New Zealand.

*Parupeneus trifasciatus**

Mullus trifasciatus Lacepède, 1802: 383, 404 (no locality given).

Rare, one specimen speared in the lagoon at Comet's Hole. Widespread in the tropical Indo-W. Pacific.

PEMPHERIDAE . . . BULLSEYES (J.R.P.)

Parapriacanthus unwini

Pempheris unwini Ogilby, 1889a: 60 (Lord Howe Island).

Large diurnal schools in caves outside the lagoon in 15-20 m, dispersing at night. Known only from Queensland and Lord Howe Island.

*Pempheris analis**

Pempheris analis Waite, 1910: 375 (Kermadec Islands).

Common outside the lagoon in 5-25 m. Two unrecorded specimens (AMS I. 14066 and IB. 6328) collected in 1917 and 1962 by P. Pedley and J. Booth. The specimens agree with the original description of Waite except the dorsal count is VI, 9-11 rather than VI, 9. Previously recorded from the Kermadec Islands and Western Australia.

*Pempheris oualensis**

Pempheris oualensis Cuvier (in Cuvier and Valenciennes), 1831: 299 (Caroline Islands).

One specimen collected outside the lagoon in 12 m. It lacks enlarged jaw teeth; if *P. otaitensis* is found to be distinct, this latter name should apply. Widespread in the tropical Indo-W. Pacific.

*Pempheris vanicolensis**

Pempheris vanicolensis Cuvier (in Cuvier and Valenciennes), 1831: 305 (Vanicolo, Santa Cruz Islands).

One specimen collected outside the lagoon in 12 m. Three unrecorded specimens (AMS I. 4008-10) from Heron Island, Queensland collected in 1957 by R. Slack-Smith; new record for Australia. Widespread in the tropical Indo-W. Pacific.

KYPHOSIDAE . . . DRUMMERS (D.F.H.)

Girella cyanea

Girella cyanea Macleay, 1881: 409 (no locality, probably New South Wales).

Girella cyanea. — Ramsay, 1888: 32 (Lord Howe Island).

Common in lagoon and outer reef rocky habitats to depths of 25 m, occurring in small aggregations. The angling record for the bluefish for Lord Howe Island is 5 kg. The species has 15 dorsal spines. At the Kermadec Islands it is sympatric with the related *G. fimbriatus,* which has 16 dorsal spines: *G. fimbriatus* is also distinguished by numerous papillae at the margin of the posterior nostril. Known from New South Wales, Middleton and Elizabeth reefs, Lord Howe Island, Norfolk Island, Kermadec Islands, and northern New Zealand.

*Girella elevata**

Girella elevata Macleay, 1881: 408 (Port Jackson, New South Wales).

The blackfish is common in New South Wales, but known from Lord Howe Island from one large adult (AMS I. 13892) collected before 1916. This species differs from *G. cyanea* in being blackish, having a black opercular margin and 13 dorsal spines. Also known from southern Queensland and eastern Victoria.

Kyphosus fuscus

Xyster fuscus Lacepède, 1803: 484-485 (no locality given).

Kyphosus fuscus. — McCulloch and Waite, 1916: 442 (Lord Howe Island).

Five individuals collected outside the lagoon and at Ball's Pyramid in 10-25 m. Others were seen in the lagoon. At Norfolk Island this fish is called the dreamfish; eating the head is said to produce nightmares. Widespread in the Indo-W. Pacific.

SCORPIDIDAE . . . SWEEPS, MADOS AND STRIPEYS (D.F.H.)

Atypichthys latus

Atypichthys latus McCulloch and Waite, 1916: 442-443 (Lord Howe and Norfolk islands).

Common outside the lagoon in 5-40 m. Doak (1972) has illustrated this species from New Zealand as *A. strigatus*. Known from Lord Howe and Norfolk islands and northern New Zealand.

Atypichthys strigatus

Atypus strigatus Günther 1860: 64 (Kermadec Islands and Australia).

Atypus strigatus. — Ramsay, 1888: 32 (Lord Howe Island).

Atypichthys mado Whitley, 1931: 319 (New South Wales).

Whitley (1931), noting that Günther had two species in his description of *A. strigatus*, designated Rauol Island in the Kermadec Islands as the type locality and described the Australian form as *Atypichthys mado*. The Rauol Island specimen belongs to the species described as *Atypichthys latus*. Fraser-Brunner (1946) questioned Whitley's action and designated a skin from Western Australia as the lectotype of *A. strigatus*, making *A. mado* a synonym of *A. strigatus* and leaving *A. latus* for the Kermadec and Lord Howe Island species. Under recent rulings by the International Commission of Zoological Nomenclature designation of a lectotype takes precedence over any type locality designations.

Although Ogilby (1889) reported this species as common in Comet's Hole in the lagoon, we collected only 1 specimen outside the lagoon in 25 m. It was rarely observed in the lagoon. This species is common in New South Wales. Known from Lord Howe Island, New South Wales, Western Australia and possibly New Zealand.

Microcanthus strigatus

Chaetodon strigatus Cuvier (in Cuvier and Valenciennes), 1831: 25 (Japan).

Chaetodon strigatus. — Ogilby, 1889: 55 (Lord Howe Island).

Microcanthus howensis Whitley, 1931: 112-113 (Lord Howe Island).

Observed occasionally (2 collected) in lagoon and outer reef habitats in 2-30 m. Several specimens at AMS, including the type of *M. howensis* (AMS IA. 4018), had previously been collected at Lord Howe Island. The same species occurs from coral reefs at the southern end of the Great Barrier Reef and rocky reefs of New South Wales. Material from New South

Wales show variation of stripe width as well as notable changes with growth. Known from Lord Howe Island, New South Wales, Queensland, Ryukyu Islands, Japan, and the Hawaiian Islands.

Scorpis lineolatus?

Scorpis lineolatus Kner, 1865: 108 (New South Wales).

Scorpis aequipinnis. — McCulloch and Waite, 1916: 443 (in part, one Norfolk Island specimen).

Two specimens at AMS, one from Lord Howe Island (AMS IB. 659) and one from Norfolk Island (AMS I. 6003), are deeper bodied than specimens of *S. violaceus.* In general appearance they agree with *S. lineolatus,* but the gill arches have been removed from both specimens. Known from Lord Howe and Norfolk Islands, and New South Wales.

Scorpis violaceus

Ditrema violacea Hutton, 1873: 261 (New Zealand).

Scorpis aequipinnis. — Ramsay, 1888: 32 (Lord Howe Island).

Observed occasionally (4 collected) outside the lagoon in 3-15 m. This species is distinguished from the related New South Wales form, *S. lineolatus,* in having fewer than 30 rakers on the outer face of the second gill arch. Although *S. violaceus* has been recorded from New South Wales, the specimen could not be located (McCulloch, 1917). As noted by McCulloch and Waite (1916) this species has been confused under the name *S. aequipinnis,* a temperate Australian species. The species figured by Doak (1972) from northern New Zealand as *S. aequipinnis* is clearly not that species, but probably *S. violaceus.* Known from New South Wales, Lord Howe and Norfolk islands, and northern New Zealand.

CHAETODONTIDAE . . . BUTTERFLY FISHES (B.C.R.)

*Chaetodon auriga**

Chaetodon auriga Forsskål, 1775: 60 (Red Sea).

Observed occasionally in the lagoon (also collected) in 1-8 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Chaetodon bennetti**

Chaetodon bennetti Cuvier (in Cuvier and Valenciennes), 1831: 84 (Sumatra).

Rare, 3 individuals observed (1 collected) in the lagoon. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Chaetodon citrinellus**

Chaetodon citrinellus Cuvier (in Cuvier and Valenciennes), 1841: 27 (Guam; Tahiti).

Observed occasionally (also collected) in lagoon and outer reef habitats in 2-15 m, usually associated with rocky substratum. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Chaetodon flavirostris

Chaetodon flavirostris Günther, 1874: 41 (Vavau, Friendly Islands).

Chaetodon aphrodite Ogilby, 1889a: 55 (Lord Howe Island).

Occurs in lagoon and outer reef habitats to 15 m. Second in abundance among species of *Chaetodon*. Goldman (1967) has shown that *C. aphrodite* is the juvenile of *C. flavirostris*. Widespread in the tropical South Pacific including eastern Australia.

*Chaetodon guentheri**

Chaetodon güntheri Ahl, 1923: 99 (Manado).

Observed occasionally (5 collected) outside the lagoon in 25-45 m. Juveniles infrequently observed in shallow lagoon waters. Known also from eastern Australia, Sulawesi, Taiwan and southern Japan.

*Chaetodon lineolatus**

Chaetodon lineolatus Cuvier (in Cuvier and Valenciennes), 1831: 40 (Mauritius).

About 6 individuals observed (1 collected) in the lagoon in 1-5 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Chaetodon lunula**

Pomacentrus lunula Lacepède, 1802: 507, 511-13 (no locality given).

Rare, 1 specimen collected in the lagoon and 2 sighted off Middle Beach. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Chaetodon melanotus**

Chaetodon melannotus Bloch and Schneider, 1801: 224 (Tranquebar).

Observed occasionally (3 collected) in the lagoon in 1-5 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Chaetodon mertensii**

Chaetodon mertensii Cuvier (in Cuvier and Valenciennes), 1831: 47 (no locality given).

Rare, 2 individuals collected outside the lagoon in 25-30 m. Widespread in the tropical western Pacific. Recently collected off Cairns, Queensland by G. Allen; new record for Australia.

*Chaetodon ornatissimus**

Chaetodon ornatissimus Cuvier (in Cuvier and Valenciennes), 1831: 22 (Tahiti).

Recorded here from a colour transparency taken by Mr. J. Brown in the lagoon. Widespread in the tropical western Pacific including Australia.

*Chaetodon pelewensis**

Chaetodon pelewensis Kner, 1867: 308 (Pelew Islands).

Rare, two specimens collected from the lagoon in 1-10 m. Widespread in the tropical western Pacific including Australia.

*Chaetodon plebeius**

Chaetodon plebeius Cuvier (in Cuvier and Valenciennes), 1831: 68 (South Seas).

Observed occasionally (3 collected) in the lagoon in 1-5 m. Widespread in the tropical western Pacific including eastern Australia.

*Chaetodon rainfordi**

Chaetodon rainfordi McCulloch, 1923a: 4 (Holbourne Island, Queensland).

Rare, 2 individuals collected in the lagoon in 1-10 m. Known also from eastern Australia.

*Chaetodon speculum**

Chaetodon speculum Cuvier (in Cuvier and Valenciennes), 1831: 73 (Batavia).

Rare, 2 specimens collected in the lagoon in 1-10 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Chaetodon tricinctus

Chaetodon trincinctus Waite, 1901: 45 (Lord Howe Island).

The most common *Chaetodon* at Lord Howe Island, occurring in lagoon and outer reef habitats in 1-45 m. One specimen from Norfolk Island at AMS (IB. 5356). Confined to Lord Howe and Norfolk islands, and Middleton Reef.

*Chaetodon trifasciatus**

Chaetodon trifasciatus Park, 1797: 34 (Sumatra).

Observed occasionally (4 collected) in the lagoon in 1-10 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Chaetodon unimaculatus**

Chaetodon unimaculatus Bloch, 1787: 75 (E. Indies).

Rare, 1 pair observed (1 specimen collected) at North Islet in 25 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Chaetodon vagabundus**

Chaetodon vagabundus Linnaeus, 1758: 276 (E. Indies).

Rare, 2 specimens collected, 1 from Middle Beach, the other from the lagoon. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Chelmonops howensis

Chaetodon howensis Waite, 1903: 33 (Lord Howe Island).

Observed occasionally (5 collected) outside the lagoon in 15-45 m. Known also from eastern Australia and northern New Zealand.

*Forcipiger flavissimus**

Forcipiger flavissimus Jordan and McGregor (in Jordan and Evermann), 1898: 1671 (Revillagigedo Archipelago).

Rare, 3 individuals observed (also collected) at North Islet in 20-35 m. Widespread in the tropical Indo-Pacific including eastern Australia.

*Heniochus acuminatus**

Chaetodon acuminatus Linnaeus, 1758: 272 (Indies).

Rare, 1 specimen collected in the lagoon in 3-4 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Megaprotodon trifascialis**

Chaetodon trifascialis Quoy and Gaimard, 1825: 379 (Guam).

Rare, 3 individuals observed by G. Allen in the lagoon in 2 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

POMACANTHIDAE . . . ANGEL FISHES (B.C.R. & J.R.P.)

*Centropyge bispinosus**

Holacanthus bispinosus Günther, 1860: 48 (Ambon; Aneiteum, New Hebrides).

Rare, 1 individual observed (also collected) at North Islet in 25 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Centropyge tibicen

Holacanthus tibicen Cuvier (in Cuvier and Valenciennes), 1831: 173 (no locality given).

Holacanthus tibicen. — Ogilby, 1888b: 741 (Lord Howe Island).

Observed occasionally (also collected) in lagoon and outer reef habitats in 2-25 m. Widespread in the western Pacific including eastern Australia.

*Centropyge vrolikii**

Holacanthus vrolikii Bleeker, 1853d: 339 (Ambon).

Rare, 3 individuals observed (1 collected) outside the lagoon in 20-25 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Centropyge sp. juv.

Paradiretmus circularis Whitley, 1948: 83 (Lord Howe Island).

The holotype of the nominal genus and species (AMS IB. 1944), is 13 mm SL. The general shape and particularly the head and jaws are strikingly similar to *Diretmus*. However, such fundamental differences as the presence of dorsal and anal spines prompted Whitley (1951a) to propose the new family Paradiretmidae for this form. Since then 2 additional specimens 15-16 mm SL (AMS IB. 4071, IB. 4083) have been collected as beach-strandings near Sydney. The fin counts (D. XIV, 15; A. III, 16; V. I, 5), prominent preopercular spine, head spination, lateral line terminating under the soft dorsal, and ca. 40 scale rows are all characteristic of the pomacanthid genus *Centropyge*. The silvery colouration and small size of this presumably pelagic larval stage does not allow specific determination. The "paradiretmus" larval stage of *Centropyge*, and presumably other pomacanthids, appears homologous to the pelagic "tholichthys" larval stage of chaetodontids and scatophagids, although the lack of prominent head plates and the characteristic head and jaw shape easily distinguish the pomacanthids. Burgess (1974) has recently figured a larval pomacanthid.

Chaetodontoplus conspicillatus

Holacanthus conspicillatus Waite, 1900: 203 (Lord Howe Island).

Observed occasionally (3 collected) off North Islet in 25-35 m. Only 1 individual observed (also collected) in the lagoon in 3 m. Also known from New Caledonia and the Capricorn Group, Queensland.

Genicanthus semicinctus

Holacanthus semicinctus Waite, 1900: 204 (Lord Howe Island).

About 25 individuals observed (several collected) off North Islet in 25-45 m. Males are bluish white on upper part of body with 11 black bars and unmarked light orange on lower part; the dorsal and anal fins are light orange; the lunate caudal fin is spotted with blackish except the lobes which are orange. Juveniles and females are blackish dorsally and bluish-white ventrally with a blue rim around most of eye, the emarginate caudal fin with broad blackish lobes, the central region pale, finely spotted with blackish. Known only from Lord Howe Island.

*Pomacanthus semicirculatus**

Holacanthus semicirculatus Cuvier (in Cuvier and Valenciennes), 1831: 191 (E. Indies).

Rare, 3 individuals observed (1 collected) outside the lagoon in 15-25 m. Widespread in the tropical western Pacific including eastern Australia.

PENTACEROTIDAE . . . BOAR FISHES (G.R.A.)

*Histiopterus acutirostris**

Histiopterus acutirostris Temminck and Schlegel, 1844: 88 (Japan).

Two individuals collected and several others sighted in and around caves and ledges outside the lagoon in 15-30 m. Previously recorded from Japan and Hawaii.

POMACENTRIDAE . . . DAMSEL FISHES (G.R.A.)

Abudefduf coelestinus

Glyphisodon coelestinus Cuvier (in Cuvier and Valenciennes), 1830: 464 (Mauritius).

Glyphisodon coelestinus. — Ogilby, 1889: 64 (Lord Howe Island).

Observed occasionally in the lagoon in 1-5 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Abudefduf saxatilis

Chaetodon saxatilis Linnaeus, 1758: 276 (Indies).

Glyphisodon saxatilis. — Waite, 1904a: 170 (Lord Howe Island).

Six individuals observed (4 collected) outside the lagoon in 1-5 m. Circumglobal distribution including eastern Australia.

Abudefduf sordidus

Chaetodon sordidus Forsskål, 1775: 62 (Red Sea).

Abudefduf sordidus. — Allen, in press (Lord Howe Island).

Two individuals observed (both collected) in 1 m at north end of lagoon. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Amphiprion latezonatus

Amphiprion latezonatus Waite, 1900: 201 (Lord Howe Island).

Observed occasionally on deeper offshore reefs in 25-45 m. Known previously only from the holotype (AMS I. 4349). Our collections contain 11 individuals. Also known from New South Wales and southern Queensland on the basis of unreported specimens recently deposited at AMS.

Amphiprion mccullochi

Amphiprion melanopus. — Ogilby, 1889a (Lord Howe Island).

Amphiprion mccullochi Whitley, 1929: 213 (Lord Howe Island).

Common in the lagoon, also observed in outer reef areas at depths to 45 m. Known only from Lord Howe Island.

Chromis atripectoralis

Chromis atripectoralis Welander and Schultz, 1951: 107 (central and western tropical Pacific).

Chromis atripectoralis. — Allen, in press (Lord Howe Island).

Three individuals observed (also collected) in the lagoon in 3-5 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Chromis hypsilepis

Heliastes hypsilepis Günther, 1876: 66 (New South Wales).

Heliastes hypsilepis. — Ogilby, 1889a: 66 (Lord Howe Island).

Forms large aggregations outside the lagoon in 5-45 m. Known also from New South Wales, Norfolk Island, and northern New Zealand.

Chromis kennensis

Chromis kennensis Whitley, 1964: 182 (Kenn Reef, Coral Sea).

Chromis kennensis. — Allen, in press (Lord Howe Island).

Small aggregations of juveniles occasionally sighted outside the lagoon in 25 m. Also known from Kenn Reef, New Caledonia, and the Loyalty Islands.

Chromis margaritifer

Chromis dimidiatus margaritifer Fowler, 1946: 140 (Ryukyu Islands).

Chromis margaritifer. — Allen, in press (Lord Howe Island).

One individual observed (also collected) outside the lagoon in 10 m. Widespread in the tropical western Pacific including eastern Australia.

Chromis nitida

Tetradrachmum nitidum Whitley, 1928: 219 (Hayman Island, Queensland).

Chromis nitida. — Allen, in press (Lord Howe Island).

One individual observed outside the lagoon in 10 m. Known previously only from the Great Barrier Reef and New South Wales.

Chromis vanderbilti

Pycnochromis vanderbilti Fowler, 1941: 260 (Hawaiian Islands).

Chromis vanderbilti. — Randall and Swerdloff, 1973: 330 (Lord Howe Island).

Less than 25 individuals were observed outside the lagoon in 20 m. Widespread in the tropical western Pacific including eastern Australia.

Dascyllus aruanus

Chaetodon aruanus Linnaeus, 1758: 275 (Indies).

Dascyllus aruanus. — Allen, in press (Lord Howe Island).

Observed occasionally in rich coral areas of the lagoon in 3-6 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Dascyllus trimaculatus

Pomacentrus trimaculatus Rüppell, 1828: 39 (Red Sea).

Dascyllus trimaculatus. — Allen, in press (Lord Howe Island).

Observed occasionally in lagoon and outer reef habitats in 3-45 m. Frequently commensal with large sea anemones. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Eupomacentrus fasciolatus

Pomacentrus fasciolatus Ogilby, 1889a: 64 (Lord Howe Island).

Abundant in lagoon and outer reef habitats in 1-30 m. Widespread in the tropical western Pacific including eastern Australia. *E. jenkinsi* (Jordan and Evermann), type locality Hawaii, is a junior synonym.

Eupomacentrus gascoynei

Pseudopomacentrus gascoynei Whitley, 1964: 173 (Kenn Reef, Coral Sea).

Eupomacentrus gascoynei. — Allen, in press (Lord Howe Island).

Abundant in lagoon and outer reef habitats in 1-30 m. Reported also from the Great Barrier Reef, New South Wales, and northern New Zealand (Allen, in press).

Glyphidodontops glaucus

Glyphisodon glaucus Cuvier (in Cuvier and Valenciennes), 1830: 475 (Guam).

Glyphidodontops glaucus. — Allen, in press (Lord Howe Island).

One small juvenile collected with rotenone at Ned's Beach (windward side). This species is a dweller of shallow surge areas. Widespread in the tropical western Pacific including eastern Australia.

Glyphidodontops notialis

Glyphidodontops notialis Allen and Randall, 1974: 41 (New South Wales, Lord Howe Island, and New Caledonia).

Abundant outside the lagoon in 7-45 m. Known only from New South Wales, Lord Howe Island, and New Caledonia.

Paraglyphidodon polyacanthus

Glyphidodon polyacanthus Ogilby, 1889a: 65 (Lord Howe Island).

Glyphisodon antjerius (non Cuvier). — Waite, 1904: 170 (Lord Howe Island).

Very abundant in lagoon and outer reef habitats in 1-30 m. Occurs also at the Capricorn Group, Great Barrier Reef (Allen, ms), Norfolk Island, and New Caledonia.

Parma polylepis

Parma polylepis Günther, 1862: 59 (Norfolk Island).

Parma polylepis. — Ogilby, 1889a: 66 (Lord Howe Island).

Abundant in lagoon and outer reef habitats in 1-30 m. Known also from New South Wales, Queensland, Norfolk Island and New Caledonia.

Parma alboscapularis

Parma alboscapularis Allen and Hoese, in press (Lord Howe Island).

Common in certain rocky areas outside the lagoon in 8-15 m. Four specimens collected, including the holotype. Known also from northern New Zealand.

Plectroglyphidodon dickii

Glyphisodon dickii Liénard, 1839: 35 (Mauritius).

Plectroglyphidodon dickii. — Allen, in press (Lord Howe Island).

Several individuals were observed in rich coral areas of the lagoon in 1-5 m. Widespread in the tropical Indo-Pacific including eastern Australia.

Plectroglyphidodon lacrymatus

Glyphisodon lacrymatus Quoy and Gaimard, 1824: 338 (Guam).

Plectroglyphidon lacrymatus. — Allen, in press (Lord Howe Island).

One individual collected in the lagoon at a depth of 2 m. Widespread in the tropical Indo-Pacific including eastern Australia.

Plectroglyphidodon leucozona

Glyphisodon leucozona Bleeker, 1859b: 339 (Java).

Plectroglyphidodon leucozona. — Allen, in press (Lord Howe Island).

One individual speared at Ball's Pyramid in 6 m by G. Allen, but later lost. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Plectroglyphidodon johnstonianus

Plectroglyphidodon johnstonianus Fowler and Ball, 1924: 271 (Johnston Island).

Plectroglyphidodon johnstonianus. — Allen, in press (Lord Howe Island).

Observed occasionally in coralliferous areas of the lagoon and outer reef in 3-15 m. Widespread in the tropical western Pacific including eastern Australia.

Pomacentrus coelestis

Pomacentrus coelestis Jordan and Starks, 1901: 383 (Japan).

Pomacentrus coelestis. — Allen, in press (Lord Howe Island).

Approximately 100 scattered individuals observed outside the lagoon in 5-15 m. Widespread in the tropical western Pacific including eastern Australia.

Pomacentrus pavo

Pomacentrus pavo Bloch, 1787: 6 (E. Indies).

Pomacentrus pavo. — Allen, in press (Lord Howe Island).

None collected in 1973. One specimen (43 mm SL) in the AMS collection (IB. 5674) collected by J. Booth in 1962. Widespread in the tropical Indo-W. Pacific including eastern Australia.

CIRRHITIDAE . . . HAWK FISHES (J.R.P.)
Cirrhitus splendens

Cirrhitichthys splendens Ogilby, 1889a: 58 (Lord Howe Island).

Occasional outside the lagoon in 5-30 m. Known only from Lord Howe Island.

CHIRONEMIDAE . . . KELP FISHES (D.F.H.)
Chironemus marmoratus

Chironemus marmoratus Günther, 1860: 76 (Western Australia).

Chironemus marmoratus. — Ramsay, 1888: 32 (Lord Howe Island).

Known only from 5 specimens (AMS I. 937, I. 7850-51, I. 10636, I. 14067) collected before 1923. Also recorded from Western Australia, New South Wales, and northern New Zealand.

*Chironemus microlepis**

Chironemus microlepis Waite, 1916: 456-457 (Norfolk Island).

Known from 1 specimen from Lord Howe Island (AMS I. 14067) collected in 1917 and the holotype collected at Norfolk Island (AMS I. 5411).

APLODACTYLIDAE . . . ROCK CALES (J.R.P.)
Aplodactylus etheridgi

Haplodactylus etheridgii Ogilby, 1889a: 57 (Lord Howe Island).

Most abundant in shallow rocky areas with rich algal growth in 2-25 m. This species has vomerine teeth (in 2 patches) and 6 branchiostegal rays characteristic of the genus. Norman (1966: 329) erroneously lists the genus as occurring only on the west coast of South America. Known from Norfolk and Lord Howe islands, and recently recorded from northern New Zealand by Doak (1972: Pl. 27) and Moreland (1975).

CHEILODACTYLIDAE . . . MORWONGS (J.R.P.)
Goniistius ephippium

Cheilodactylus (Goniistius) ephippium McCulloch and Waite, 1916: 445 (Lord Howe and Norfolk Islands).

Common in lagoon and outside to 25 m. Previously reported only from Lord Howe and Norfolk islands, but recently recorded from New Zealand by Doak (1972) and Moreland (1975).

Goniistius gibbosus

Chilodactylus gibbosus Richardson, 1841: 21, 102 (Western Australia).

Chilodactylus vittatus (non Garrett, 1864). — Ogilby, 1889a: 59 (Lord Howe Island).

Two specimens collected outside the lagoon in 15-20 m. Two subadults observed at Comet's Hole in the lagoon. Known only from eastern and Western Australia and Lord Howe Island.

MUGILIDAE . . . MULLETS (D.F.H.)

Crenimugil crenilabis

Mugil crenilabis Forsskål, 1775: 73 (Red Sea).

Mugil dobula (non Günther, 1861). — Waite, 1898: 60 (Lord Howe Island).

Oedalechilus cirrhostomus. — Whitley, 1941: 19 (Lord Howe Island).

Crenimugil crenilabis. — Thomson, 1954: 117 (review and Lord Howe Island specimen examined).

This species is known from Lord Howe Island from a single juvenile specimen (AMS I. 4081) upon which the above records are based. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Myxus elongatus

Myxus elongatus Günther, 1861: 466 (Hobson's Bay, Victoria and Port Jackson, New South Wales).

Myxus elongatus. — Ramsay, 1888: 32 (Lord Howe Island).

Six specimens collected in gill nets from the lagoon. The species has been recorded from Norfolk Island as *Cestraeus norfolcensis* Ogilby. Known from New Hebrides, Queensland, New South Wales, Western Australia, Norfolk and Lord Howe islands.

SPHYRAENIDAE . . . BARRACUDAS (J.R.P.)

*Sphyraena barracuda**

Esox barracuda Walbaum, 1792: 94 (W. Indies).

This record is based on 2 photographs in the files of AMS sent by G. Kirby in 1936; the specimen was 4'2" long. Circumglobal distribution including eastern Australia.

*Sphyraena obtusata**

Sphyraena obtusata Cuvier (in Cuvier and Valenciennes), 1829: 350 (Pondicherry, India).

One small specimen collected in the lagoon, others observed swimming in small schools. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Sphyraena waitii?**

Sphyraena waitii Ogilby, 1908a: 29 (Sydney).

One small specimen collected in the lagoon. De Sylva (1974) has indicated the nomenclatural problems in this Indo-Pacific group of barracudas. Possibly widespread in the tropical Indo-W. Pacific including eastern Australia.

LABRIDAE . . . WRASSES (G.R.A.)

*Anampses caeruleopunctatus**

Anampses caeruleopunctatus Rüppell, 1828: 42 (Red Sea).

Observed infrequently (2 collected) outside the lagoon in rocky areas in 3-15 m. Widespread in the tropical Indo-W. Pacific.

Anampses elegans

Anampses elegans Ogilby, 1889a: 67 (Lord Howe Island).

Anampses variolatus Ogilby, 1889a: 67 (Lord Howe Island).

The second most common labrid in the lagoon after *Pseudolabrus luculentus*. Also sighted outside the lagoon to 35 m. Known also from New South Wales and recently recorded from northern New Zealand on the basis of an underwater photograph (Randall, 1972).

Anampses femininus

Anampses twistii (non Bleeker). — Ogilby, 1889a: 67 (Lord Howe Island).

Anampses femininus Randall, 1972: 176 (Easter Island).

Observed infrequently (1 collected) in lagoon and outer reef habitats in 2-35 m. Widespread across southern Oceania from Easter Island to the coast of New South Wales.

*Anampses geographicus**

Anampses geographicus Valenciennes (in Cuvier and Valenciennes), 1839: 8 (no locality given).

One pair observed by J. Randall outside the lagoon in 3 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Anampses neoguinaicus**

Anampses neoguinaicus Bleeker, 1878: 36 (New Guinea).

Less than 12 individuals observed (3 collected) outside the lagoon in 3-10 m. Distributed throughout the tropical western Pacific including eastern Australia.

*Bodianus axillaris**

Labrus axillaris Bennett, 1831: 166 (Mauritius).

One juvenile observed outside the lagoon in a cave by J. Randall in about 8 m. Probably recorded previously from Australia as *B. mesothorax*, a closely related species. Widespread in the tropical Indo-W. Pacific.

Bodianus oxycephalus

Cossyphus oxycephalus Bleeker, 1862: 129 (New Guinea).

Verreo unimaculatus. — Whitley, 1941: 37 (Lord Howe Island).

Several individuals observed outside the lagoon in 30-40 m. One specimen collected at Ball's Pyramid. Widespread in the tropical and subtropical western Pacific including eastern Australia, New Zealand, Easter Island, Hawaii and Japan (M. Gomon, pers. com.).

Bodianus perditio

Labrus perditio Quoy and Gaimard, 1834: 702 (Tonga).

Cossyphus atrolumbus. — Ogilby, 1889a: 66 (Lord Howe Island).

Rare, juvenile and adult specimens collected at North Islet in 30 m. Widespread in the tropical western Pacific including eastern Australia.

*Cheilio inermis**

Labrus inermis Forsskål, 1775: 34 (Red Sea).

Observed occasionally, but not collected in both lagoon and outer reef habitats in 2-30 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Cirrhilabrus sp.*

Several individuals observed in rich coral areas of the lagoon in 2-5 m. Three lots containing 9 specimens, 73-120 mm SL, deposited at AMS and BPBM. The largest lots, AMS I. 17380-004 and BPBM 14899, each contain 4 specimens ranging from 73-120 mm SL. J. Randall is studying the genus.

Coris aygula

Coris aygula Lacepède, 1802: 96 (no locality given).

Coris cingulum. — Whitley, 1927b: 8 (Lord Howe Island).

Rare, 1 juvenile collected and 2 subadults observed outside the lagoon in 10-20 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Coris gaimard**

Julis gaimard Quoy and Gaimard, 1824: 265 (Hawaiian Islands).

Rare, 1 juvenile collected outside the lagoon in 10 m and 1 unreported specimen (AMS B. 9562) taken during the last century. Widespread in the tropical W. Pacific.

Coris picta

Labrus pictus Bloch and Schneider, 1801: 251 (New South Wales).

Coris semicincta Ramsay and Ogilby, 1882: 301 (Lord Howe Island and New South Wales).

Common in both lagoon and outer reef habitats in 1-30 m. Known also from New South Wales and New Zealand.

*Coris sandageri**

Cymolutes sandeyeri Hector, 1884: 323 (New Zealand).

Coris sandageri. — Phillipps, 1927: 41 (name emended).

Small aggregations occasionally observed (11 collected) outside the lagoon in 10-20 m. Doak (1972) has illustrated the different colour forms. Known also from New South Wales and New Zealand.

Coris sp.

Coris aygula (non Lacepède). — Ogilby, 1889a: 68 (Lord Howe Island).

Coris cyanea (non Macleay). — Whitley, 1951b: 401 (Lord Howe Island).

This undescribed species, popularly known as the "doubleheader", was common in both lagoon and outer reef habitats in 1-25 m. Eleven lots containing 14 specimens, 72-365 mm SL deposited at AMS and BPBM. The largest lots, AMS I. 17371-017 and BPBM 14851, each contain 2 specimens, ranging from 80-118 mm SL. Known from Lord Howe Island and New South Wales.

*Cymolutes torquatus**

Xyrichthys torquatus Valenciennes (in Cuvier and Valenciennes), 1839: 54 (E. Indies).

Following Schultz' (1960) key, we identify a 97 mm SL specimen (AMS IA. 2645) collected in 1926 as *C. torquatus*. Widespread in the tropical Indo-W. Pacific.

*Gomphosus varius**

Gomphosus varius Lacepède, 1802: 100 (Tahiti).

Observed occasionally (4 collected) in both lagoon and outer reef habitats in 3-20 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Halichoeres margaritaceus

Julis margaritaceus Valenciennes (in Cuvier and Valenciennes), 1839: 484 (Vanicolo, Santa Cruz Islands).

Platyglossus pseudominiatus. — Ogilby, 1889a: 68 (Lord Howe Island).

Halichoeres opercularis. — Waite, 1900: 202 (Lord Howe Island).

Not uncommon (21 collected) in the lagoon in 2-5 m. Widespread in the tropical western Pacific including eastern Australia.

Halichoeres trimaculatus

Julis trimaculatus Quoy and Gaimard, 1834: 705 (Vanicolo, Santa Cruz Islands).

Platyglossus trimaculatus. — Ogilby, 1889a: 68 (Lord Howe Island).

Observed occasionally (1 collected) in the lagoon in 1-7 m. Widespread in the tropical western Pacific including eastern Australia.

*Hemigymnus fasciatus**

Labrus fasciatus Bloch, 1792: 6 (Japan).

Rare, 1 specimen collected outside the lagoon in 4 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Hemigymnus melapterus**

Labrus melapterus Bloch, 1791: 137 (Japan).

Several observed (1 collected) in coralliferous areas of the lagoon in 3-5 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Hemipteronotus macrolepidotus**

Labrus macrolepidotus Bloch, 1791: 735 (no locality given).

One specimen (121 mm SL) (AMS I. 7870) from J. Nicholls in 1907. Widespread in the tropical Indo-W. Pacific.

Hemipteronotus pavo

Xyrichthys pavo Valenciennes (in Cuvier and Valenciennes), 1839: 61 (Mauritius).

Iniistius cacatua Waite, 1901: 41 (Lord Howe Island).

One adult female specimen 243 mm SL obtained during the fishing competition. Schultz (in Schultz *et al.*, 1960) distinguished *pavo* from *pavoninus* Valenciennes by the former having 2 to 3 rows of scales on the cheek below the eye instead of the single row of *pavoninus*. J. Randall has examined the holotype of *pavo* at Paris (MNHN A9088, 295 mm SL) and noted that the scales below the ventroposterior edge of the eye occur in a curved diagonal row of 6 scales on one side and a comparable row on the other with a single scale behind this near the top of the first row. He has concluded that *pavo* and *pavoninus* are synonymous. Our specimen has the cheek scale pattern and counts as the holotype of *pavo* (D II-VIII, 12; A III, 12; P. 12; LL 21 + 4; GR 20) and what proportional differences which exist such as shorter pelvic fins may be a function of different size and sex. Widespread in the tropical Indo-W. Pacific.

*Hemipteronotus taeniourus**

Labrus taeniourus Lacepède, 1802: 448 (no locality given).

One specimen (31 mm SL) (AMS IB. 5725) collected by J. Booth in 1962. Widespread in the tropical Indo-W. Pacific.

Hemipteronotus sp.

Novaculichthys jacksonensis (non Ramsay). — Waite, 1900: 202 (Lord Howe Island).

One poorly preserved specimen (AMS I. 3360, 171 mm SL) collected by T. Icely in 1895. It appears close to *H. jacksonensis* (Ramsay) from New South Wales.

Hemipteronotus sp.*

One specimen (BPBM 14758, 69 mm SL) collected on the outer reef on a sandy bottom in 25 m.

Hologymnosus sp.*

Three unidentified individuals clearly belonging to this genus observed by B. Russell and J. Randall at Ball's Pyramid in 30-35 m.

*Labrichthys unilineatus**

Cossyphus unilineatus Guichenot, 1847: 284 (Guam).

Observed occasionally (1 collected) at coralliferous areas of the lagoon in 2-4 m. Previously recorded from Australia as *L. cyaneotaenia*, which Randall and Springer (1973) have shown to be a synonym. Widespread in the tropical Indo-W. Pacific.

*Labroides bicolor**

Labroides bicolor Fowler and Bean, 1928: 224 (Philippine Islands).

Several individuals observed outside the lagoon by G. Allen and J. Randall in 15-25 m. Widespread in the tropical western Pacific.

Labroides dimidiatus

Cossyphus dimidiatus Valenciennes (in Cuvier and Valenciennes), 1839: 136 (Mauritius).

Labroides paradiseus. — Ogilby, 1889a: 67 (Lord Howe Island).

Observed occasionally (1 collected) in both lagoon and outer reef habitats in 2-35 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Lienardella fasciata**

Xiphochilus fasciatus Günther, 1867: 101 (Queensland).

Rare, 1 individual observed outside the lagoon at North Islet in 30 m. Known also from the Great Barrier Reef and New Caledonia.

*Macropharyngodon meleagris**

Julis meleagris Valenciennes (in Cuvier and Valenciennes), 1839: 481 (Ulea).

Observed occasionally (2 collected) outside the lagoon in 10-30 m. Two unreported specimens at AMS from the Capricorn Group, Queensland; new record for Australia. Widespread in the tropical western Pacific including eastern Australia.

*Pseudocheilinus hexataenia**

Cheilinus hexataenia Bleeker, 1857: 84 (Ambon).

Less than 12 individuals observed (2 collected) both in lagoon and outer reef habitats in 2-10 m, usually among live coral. Four specimens at AMS from the Capricorn Group, Queensland; new record for Australia. Widespread in the tropical Indo-W. Pacific.

*Pseudojuloides cerasinus**

Pseudojulis ceracinus Snyder, 1904: 528 (Hawaiian Islands).

Rare, 1 specimen observed (also collected) outside the lagoon at North Islet in 35 m. Known also from the Hawaiian Islands, Tahiti (Randall, 1973) and unreported specimens from the Loyalty Islands and eastern Australia from One Tree Island, Queensland and Byron Bay, New South Wales.

Pseudolabrus gymnogenis

Labrichthys gymnogenis Günther, 1862: 117 and 507 (Sydney).

Pseudolabrus nigromarginatus. — Waite, 1903: 29 (Lord Howe Island).

The single specimen reported by Waite is in the AMS collection (I. 6042); another specimen from Lord Howe Island mentioned by McCulloch (1913) could not be found. Known from Lord Howe Island and eastern Australia.

Pseudolabrus inscriptus

Labrus inscriptus Richardson, 1848: 134 (Norfolk Island).

Labrichthys inscriptus. — Ramsay, 1888: 32 (Lord Howe Island).

Common in lagoon and outer reef habitats, usually in exposed rocky areas with some surge, in 1-10 m. Known also from Norfolk Island, Kermadec Islands, and New Zealand.

Pseudolabrus luculentus

Labrus luculentus Richardson, 1848: 130 (Norfolk Island).

Labrichthys luculentus. — Ramsay, 1888: 32 (Lord Howe Island).

The most abundant labrid in lagoon and outer reef habitats in 1-45 m. Known also from New South Wales, Norfolk Island, Kermadec Islands, and New Zealand.

Pseudolabrus sp.*

Locally common (1 collected, AMS I. 17400-003, 115 mm SL), in sandy areas outside the lagoon in 45 m. The male and female colour varieties were illustrated in colour (plate 38, "rainbow-fish") by Doak (1972) who identified it as *Halichoeres* sp. This new species will be described by A. Ayling and B. Russell. Known also from New Caledonia, N.S.W. and northern New Zealand.

Stethojulis bandanensis

Julis bandanensis Bleeker, 1851: 254 (E. Indies).

Stethojulis axillaris (non Quoy and Gaimard). — Ogilby, 1889a: 68 (Lord Howe Island).

Observed occasionally (7 collected) in lagoon and outer reef habitats in 2-10 m. Widespread in the Indo-Australian Archipelago and tropical western Pacific. Previously recorded from Australia as *S. axillaris.*

*Thalassoma amblycephalus**

Julis amblycephalus Bleeker, 1856a: 83 (Java and Celebes).

Observed occasionally (7 collected) in small aggregations in lagoon and outer reef habitats in 2-15 m. *T. amblycephalus* has only recently been recorded from Australia. Russell *et al.* (1974) include this species as sight records from One Tree Island, Capricorn Group, Queensland. It is common on the Great Barrier Reef and 8 specimens are in AMS. Widespread in the tropical Indo-W. Pacific.

Thalassoma fuscum

Labrus fuscus Lacepède, 1802: 437 (no locality given).

Julis trilobata. — Ogilby, 1889a: 68 (Lord Howe Island).

Observed occasionally (1 collected) in rocky areas with some surge in 1-10 m. Widespread in the tropical Indo-W. Pacific.

Thalassoma hardwickei

Sparus hardwickei Bennett, 1830: 12 (Ceylon).

Thalassoma dorsale. — Waite, 1903: 26 (Lord Howe Island).

Observed occasionally (1 collected) in the lagoon in 2-5 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Thalassoma janseni

Julis jansenii Bleeker, 1856c: 56 (Celebes).

Thalassoma jansenii. — Waite, 1903: 25 (Lord Howe Island).

Less than 12 individuals observed (1 collected) outside the lagoon in surge areas in 1-5 m. Widespread in the Indo-Australian Archipelago and tropical western Pacific including eastern Australia.

Thalassoma lunare

Labrus lunaris Linnaeus, 1758: 283 (India).

Julis lunaris. — Ogilby, 1889a: 68 (Lord Howe Island).

Common in both lagoon and outer reef habitats in 3-20 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Thalassoma lutescens

Julis lutescens Lay and Bennett, 1839: 65 (Tahiti and Ryukyu Islands).

Thalassoma aneitense. — Waite, 1900: 202 (Lord Howe Island).

Observed occasionally (3 collected) in lagoon and outer reef habitats in 3-20 m. Widespread in the tropical western Pacific including eastern Australia.

Thalassoma purpureum

Scarus purpureus Forsskål, 1775: 27 (Red Sea).

Thalassoma purpureum. — McCulloch and Waite, 1916: 445 (Lord Howe Island).

Observed occasionally (2 collected) in rocky areas with some surge in 1-10 m. Widespread in the tropical Indo-W. Pacific including eastern Australia (latter record based on observation by J. Randall at One Tree Island, Great Barrier Reef).

*Thalassoma quinquevittatum**

Scarus quinquevittatus Lay and Bennett, 1839: 66 (Ryukyu Islands).

Rare, 1 collected outside the lagoon in 3-5 m. Widespread in the tropical western Pacific.

SCARIDAE . . . PARROT FISHES (G.R.A.)

Leptoscarus vaigiensis

Scarus vaigiensis Quoy and Gaimard, 1824: 288 (Waigiu).

Scarichthys auritus. — Ogilby, 1889a: 70 (Lord Howe Island).

Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Scarus chlorodon**

Scarus chlorodon Jenyns, 1842: 105 (Cocos-Keeling Island).

Rare, observed in lagoon and outer reef habitats. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Scarus forsteri**

Scarus forsteri Valenciennes (in Cuvier and Valenciennes), 1839: 275 (Tahiti).

Several individuals observed (4 collected) on the outer reef in 2-20 m. Juveniles occasionally seen in the lagoon. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Scarus ghobban

Scarus ghobban Forsskål, 1775: 28 (Red Sea).

Scarus sp. Ogilby, 1889a: 70 (Lord Howe Island).

Scarus pyrrhostethus Waite, 1904b: 214 (Lord Howe Island).

Scarids were generally scarce, but this species was the most common; observed in lagoon and outer reef habitats to 30 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Scarus gibbus**

Scarus gibbus Rüppell, 1828: 81 (Red Sea).

Rare, 1 adult collected at Ball's Pyramid in 35 m and juveniles observed in the lagoon at Comet's Hole. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Scarus lunula**

Callyodon lunula Snyder, 1908: 99 (Ryukyu Islands).

Rare, 1 large male observed by J. Randall outside the lagoon in 30 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Scarus sexvittatus**

Scarus sexvittatus Rüppell, 1835: 26 (Red Sea).

Rare, 3 individuals observed (1 collected) outside the lagoon in 3-5 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Scarus sordidus**

Scarus sordidus Forsskål, 1775: 80 (Red Sea).

Less than 12 individuals observed (1 collected) in lagoon and outer reef habitats to 25 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Scarus sp.*

Two individuals observed by G. Allen outside the lagoon in 45 m. This undescribed species is apparently confined to deep water. It has also been collected by J. Randall at the Capricorn Group, Queensland and islands of southeast Oceania.

MUGILOIDIDAE . . . GRUBFISHES (B.C.R.)

Parapercis cylindrica

Sciaena cylindrica Bloch, 1792: 42 (E. Indies).

Parapercis cylindrica. — Waite, 1900: 209 (Lord Howe Island).

One collected in 1973, and several specimens previously taken at Lord Howe Island deposited at AMS. Widespread in the tropical western Pacific including eastern Australia.

*Parapercis polyophthalma**

Parapercis polyophthalma Cuvier (in Cuvier and Valenciennes), 1829: 272 (Red Sea).

One specimen from Lord Howe Island taken by J. Booth (AMS IB. 6386). Marshall (1950) has shown that *P. polyophthalma* and *P. hexophthalma* are sexual colour forms of the same species. Widespread in the tropical Indo-W. Pacific.

PERCOPHIDIDAE . . . SAND FISHES (D.F.H.)

Enigmapercis sp.*

This undescribed species was found burrowed in sand outside the southern end of the lagoon in 6-25 m. It will be described by Hoese in a subsequent paper. Four lots containing 18 specimens, 22-60 mm SL, deposited at AMS and BPBM. The largest lot, AMS I. 17358-004, includes 14 specimens, 22-50 mm SL.

LIMNICHTHYIDAE . . . TOMMY FISHES (D.F.H.)

Limnichthys fasciatus

Limnichthys fasciatus Waite, 1904a: 178 (Lord Howe Island).

Abundant in sandy areas of the lagoon and 4 specimens collected outside in 20 m. Also known from Japan, southern Queensland, New South Wales, and Western Australia.

BLENNIIDAE . . . BLENNIES (D.F.H. & B.C.R.)

Cirripectes alboapicalis

Salarias alboapicalis Ogilby, 1899: 742 (Lord Howe Island).

Abundant in coralliferous areas of the lagoon and in surge areas outside the lagoon to depths of 15 m. Several specimens previously collected are at AMS. Schultz (1941) synonymized *C. alboapicalis* with *C. variolosus*. Strasburg and Schultz (1953) recognized the Australian specimens previously identified as *C. variolosus* as *C. filamentosus*, but did not mention *C. alboapicalis*. The species is distinct in having 16 dorsal rays, crenulated lower lip, and in lacking a median nuchal pore. Known from Lord Howe Island, Norfolk Island and the Kermadec Islands.

Cirripectes filamentosus

Salarias filamentosus Alleyne and Macleay, 1877: 337 (Cape York, Northern Australia).

Salarias variolosus. — Ogilby, 1889a: 62 (Lord Howe Island).

One specimen speared in the lagoon at Comet's Hole. This species is common at One Tree Island on the Great Barrier Reef. In these southern specimens the first dorsal spines are not filamentous in females and only slightly prolonged in males. Known from Australia and Lord Howe Island.

Cirripectes sp.*

One specimen (AMS I. 17368-035, 63 mm SL) collected from a surge channel in 4 m outside the lagoon. The species has a similar colour pattern to *C. quagga*, but has higher dorsal ray counts.

Enchelyurus ater

Petroscirtes ater Günther, 1877: 199 (Tahiti).

Enchelyurus ater. — Springer and Gomon, 1975: 78 (Lord Howe Island).

Twenty-seven specimens collected from coral. This is one of the few species taken at Lord Howe Island that is restricted to Oceania. It is replaced on the Great Barrier Reef by the related species *E. kraussi*. Seven specimens collected in 1922 are at AMS.

Entomacrodus striatus

Salarias striatus Quoy and Gaimard (in Cuvier and Valenciennes), 1836: 309-10 (Masson, Mauritius).

Salarias marmoratus. — Ogilby, 1889a: 62 (Lord Howe Island).

Entomacrodus striatus. — Springer, 1967: 73 (Indo-Pacific and Lord Howe Island).

Three specimens collected from rocky high intertidal areas on the western side of the island. Springer (1967) recorded previous AMS specimens collected from Lord Howe Island. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Istiblennius edentulus

Blennius edentulus Bloch and Schneider, 1801: 172 (Society Islands).

Salarias quadricornis. — Ogilby, 1889a: 63 (Lord Howe Island).

Salarias insulae Ogilby, 1899: 741 (Lord Howe Island).

Several specimens collected from rocky intertidal areas. Previously known from Lord Howe Island on the basis of numerous specimens. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Petroscirtes lupus

Salarius lupus De Vis, 1886: 58 (Moreton Bay, Queensland).

Petroscirtes icelii Ogilby, 1894: 370 (Lord Howe Island).

Common (7 collected) in dead heart urchins, cans and bottles over sand in lagoon. Previously known from several specimens. New South Wales and the Great Barrier Reef.

*Plagiotremus laudandus**

Pescadorichthys (Musgravius) laudandus Whitley, 1961: 63 (New Caledonia).

Rare, only 1 specimen collected outside the lagoon off Rabbit Island in 10 m. One unrecorded specimen from One Tree Island, Great Barrier Reef, at AMS; new record for Australia. Widespread in the Indo-W. Pacific including eastern Australia.

*Plagiotremus rhynorhynchos**

Petroskirtes rhynorhynchos Bleeker, 1852a: 273 (Ambon).

Occasional in outer reef habitats from 1-25 m. Widespread in the Indo-W. Pacific including eastern Australia.

*Plagiotremus tapeinosoma**

Petroskirtes tapeinosoma Bleeker, 1857: 64 (Ambon).

Common both in the lagoon and outer reef habitats in 1-25 m. Widespread in the Indo-W. Pacific including eastern Australia and also New Zealand (Doak, 1972: pl. 43 — "*Aspidontus maroubrae*").

*Stanulus talboti**

Stanulus talboti Springer, 1968: 119 (Great Barrier Reef).

Several specimens collected from surge channels and coral ledges in 3-5 m off Phillip Point. Others observed outside the lagoon on coral at depths to 15 m. Previously known only from the Great Barrier Reef.

Xiphasia matsubarai

Xiphasia setifer (non Swainson, 1839). — Waite, 1903: 45 (Lord Howe Island).

Xiphasia matsubarai Okada and Suzuki, 1952: 75-77 (Japan).

Recorded from 1 specimen collected in 1902 (AMS I. 5345). Known only from Lord Howe Island and Japan.

*Xiphasia setifer**

Xiphasia setifer Swainson, 1839: 259 (Vizagapatam, India).

?Gobioides sp. Ogilby, 1889a: 62 (Lord Howe Island).

Known from Lord Howe Island on the basis of 1 specimen collected in 1922 (AMS IA. 141). Waite (1903) suggested that the Ogilby (1889) record of *Gobioides* sp. is *Xiphasia setifer,* but the specimen has not been located. Widespread in the tropical Indo-W. Pacific.

TRIPTERYGIIDAE . . . TRIPLEFINS (D.F.H.)

As with the gobiids, this group is in need of revision. Tentatively we use generic names recognized by Australian authors.

Norfolkia squamiceps

Tripterygion nigripenne. — Waite, 1904: 182 (Lord Howe Island).

Gillias squamiceps McCulloch and Waite, 1916: 449 (Lord Howe and Norfolk islands).

Common in lagoon and outer reef habits to depths of 30 m. Previously the species was known from the type (AMS I. 5401) and one additional specimen. Fowler described Norfolk Island specimens as *N. lairdi.* Whitley's (1964) *N. squamiceps* record from the Great Barrier Reef was based on an undescribed species. Known only from Lord Howe and Norfolk islands.

Vauclusella rufopilea

Tripterygion rufopileum Waite, 1904a: 182-84 (Lord Howe Island).

Many specimens collected from shallow parts of the lagoon and inshore windward areas. Whitley (1965) synonymized *V. rufopileum* with *V. annulata.* The species is closely related to *V. annulata* from southern Queensland and New South Wales, but differs in lacking a vertical bar at the base of the caudal peduncle. Males have a reddish head which is black ventrally. That of the females is uniformly yellowish green. Known from Lord Howe and Norfolk islands.

Tripterygiid sp.*

Tripterygion rufopileum Waite, 1904a: 182-84 (in part, Lord Howe Island).

Fifty-three specimens of this banded species collected from the lagoon and east side of the island from intertidal areas to depths of 20 m. Three lots, the largest series 30 specimens 12-25 mm SL (AMS I. 17424-010), deposited at AMS and BPBM.

CLINIDAE . . . CRESTED WEEDFISHES (D.F.H.)

Cristiceps aurantiacus

Cristeceps aurantiacus Castlenau, 1879: 386 (New South Wales).

Cristiceps pedicillatus Ogilby, 1889a: 63 (Lord Howe Island).

Cristiceps australis. — Ogilby, 1890: 1028 (Lord Howe Island).

?Cristiceps argyropleura. — Whitley, 1927b: 8 (Lord Howe Island).

Known only from 2 specimens. One (AMS I. 1773) was recorded as *C. aurantiacus* by Ogilby who named it as *C. pedicillatus* in a footnote. The second was recorded as *C. australis* by Waite (AMS I. 2510). No specimens were located to substantiate Whitley's record of *C. argyropleura.* Also known from southern Australia, northward into New South Wales.

Petraites roseus

Cristiceps roseus Günther, 1861: 274 (Western Australia).

Cristiceps roseus. — Ogilby, 1889a: 63 (Lord Howe Island).

Several specimens collected from rocky areas covered with algae in the lagoon and outside in 1-25 m. Also known from Western Australia, South Australia, Victoria, and New South Wales.

AMMODYTIDAE . . . SAND LANCES (D.F.H.)

Ammodytoides vagus

Bleekeria vaga McCulloch and Waite, 1916: 447 (Lord Howe Island).

Known from Lord Howe Island only from the type (AMS I. 9274). Also known from New South Wales.

CALLIONYMIDAE . . . DRAGONETTES (B.C.R.)

*Callionymus calcaratus**

Callionymus calcaratus Macleay, 1881: 628 (Port Jackson, New South Wales).

Rare, 1 specimen collected in the lagoon in 2 m. Known also from western and eastern Australia, and 1 specimen from Norfolk Island (AMS IB. 6411).

Callionymus japonicus scaber

Callionymus japonicus scaber McCulloch, 1926: 197 (Lord Howe Island).

Previously recorded from Lord Howe Island (type locality). Known also from eastern Australia.

GOBIIDAE . . . GOBIES (D.F.H.)

The taxonomy of Indo-Pacific gobiid fishes is in a chaotic state. Many workers have confused 2 or more species under one name. Consequently, it is not possible at this time to give names to all Lord Howe Island species. D. Hoese, who is revising certain gobiid groups, is using a numbering system in some genera which appears below. These numbers will be consistent and given as synonyms in further publications as appropriate names are determined for the species in question.

Acentrogobius sp.*

Several individuals observed (1 collected), AMS I. 17393-002) in the lagoon over sand in 5-10 m. A widespread tropical Indo-W. Pacific species, often confused with *Acentrogobius ornatus,* which is regarded as having the upper pectoral rays free. A re-examination of types is needed to stabilize the nomenclature of this complex.

*Amblygobius phalaena**

Gobius phalaena Valenciennes (in Cuvier and Valenciennes), 1837: 9 (Vanicolo, Santa Cruz Islands).

Several specimens collected from sand at the base of coral slopes in deeper holes in the lagoon. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Amblygobius sp.*

One specimen 32 mm SL of this pale species collected in the lagoon (AMS I. 17362-019). Others were seen over sand at the base of coral slopes in deeper parts of the lagoon. Also found on the Great Barrier Reef.

*Asterropteryx semipunctatus**

Asterropteryx semipunctatus Rüppell, 1828: 138-139 (Red Sea).

Several individuals observed (2 collected) in the lagoon in the same habitat as *Amblygobius.* Widespread in the tropical Indo-W. Pacific including eastern Australia.

Bathygobius aeolosoma

Gobius aeolosoma Ogilby, 1889a: 61 (Lord Howe Island).

Fourteen specimens collected. The Indo-Pacific species of this genus are in need of revision. The present species differs little from *B. fuscus* from the Great Barrier Reef and may prove to be identical. Known only from Lord Howe Island.

Callogobius sp. 3*

Five specimens collected from coral in the lagoon (AMS I. 17359-016, I. 17362-022, I. 17364-008). It has been recorded from the Great Barrier Reef (McCulloch and Ogilby, 1919) under the name C. *hasselti,* but these workers confused 4 species.

Callogobius sp. 6*

Callogobius sclateri. — McCulloch and Ogilby, 1919: 219 (Two Isles, Great Barrier Reef).

Thirteen specimens collected from coral in the lagoon. It is closest to C. *snelliusi* and C. *irratus,* but has higher fin ray counts. Seven lots deposited at AMS and BPBM; the largest lot 6 specimens 31-51 mm SL, AMS I. 17362-021. Also known from the Great Barrier Reef.

Cottogobius sp.*

Three specimens, 20-21 mm SL collected and several others observed on seawhips in 46 m (AMS I. 17400-002). The species has thickened lower pelvic rays and D. I, 8 and A. I, 9 separating it from C. *yongei* and C. *erythrops.*

Eviota sp.*

One specimen 13 mm SL collected from a rocky area outside the southern end of the lagoon (AMS I. 17363-007). It is in poor condition. It is close to but not identical with *E. nebulosa* Smith.

Eviota sp. cf. *afelei**

Allogobius viridis Waite, 1904a: 177 (in part, Lord Howe Island).

Over 100 specimens collected on live coral in the lagoon and outside the reef in depths to 25 m. The species is green in shallow water and red below about 18 m. It differs from *E. afelei* from the Great Barrier Reef and the central Pacific in having two prominent black spots on the pectoral base, and may prove to be a geographical variant of *E. afelei*. It is similar to *E. queenslandica* from the Great Barrier Reef, which has spots on the pectoral base, but differs in having 6 subcutaneous bars from the anal origin to the caudal base (5 in *E. queenslandica*). Seven lots deposited at AMS and BPBM; the largest lot 80 specimens, 8-22 mm SL (AMS I. 17367-004).

Eviota sp. 4*

Four specimens collected from a surge channel outside the lagoon in 5 m (AMS I. 17424-011). All were pale yellow in life. The species is related to *E. smaragdus*. Specimens are at AMS from Sydney, New South Wales, and the Great Barrier Reef.

Eviota viridis

Allogobius viridis Waite, 1904a: 177 (Lord Howe Island).

This bright green species was found (15 collected) on the reef crest only on coral rubble. It is closely related to *E. zonura* from the central Pacific. Widespread in the tropical western Pacific including eastern Australia.

*Favonigobius lateralis**

Gobius lateralis Macleay, 1881: 602 (southern Australia).

Ten specimens seined from grass flats in the northern part of the lagoon. These have oblique bands, as is typical of specimens from New South Wales. A temperate species ranging from southern Queensland to Tasmania, east to southwestern Australia, and northern New Zealand.

*Fusigobius neophytus**

Gobius neophytus Günther, 1877: 174 (Oceania).

Two specimens collected over sand at the base of coral slopes in deeper holes of the lagoon. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Gnatholepis inconsequens**

Gnatholepis inconsequens Whitley, 1956: 44 (Heron Island, Great Barrier Reef).

Seven specimens collected from the lagoon. This species is similar to *G. anjerensis* and, until a revision is available, the above name is used for this Australian species.

*Paragobiodon echinocephalus**

Gobius echinocephalus Rüppell, 1828: 136 (Red Sea).

One specimen collected, but others in the AMS collection. This species, which is known only from *Pocillopora,* was rare in spite of the abundance of this coral. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Paragobiodon lacunicola**

Paragobiodon lacunicola Kendall and Goldsborough, 1911: 318 (Tuamotu Islands).

This species is closely related to the previous species and also occurs in *Pocillopora.* It too was found to be rare (2 collected). The species is often referred to as *P. kerri.* Widespread in the tropical Indo-W. Pacific including the Great Barrier Reef (new record).

*Paragobiodon xanthosoma**

Gobius xanthosoma Bleeker, 1852b: 703 (Ceram).

This species normally occurs in the coral *Seriatopora hystrix.* Although *Seriatopora* was found to be abundant at Lord Howe Island, only 1 specimen of *P. xanthosoma* was collected. Widespread in the tropical Indo-W. Pacific including the Great Barrier Reef.

*Pleurosicya mossambica**

Pleurosicya mossambica Smith, 1959: 218 (E. Africa).

One specimen collected in 20 m. *Pleurosicya* is related to a group of genera which includes *Cottogobius, Bryaninops, Pleurosicyops,* and *Luposicya,* which occur on various invertebrates such as alcyonarians, sponges, and ascidians. The species from Lord Howe Island is similar to *P. boldinghi* from New Guinea, but we follow Smith in separating the 2 species. The Lord Howe Island specimen constitutes the first record of the species outside the Indian Ocean.

*Ptereleotris evides**

Encaeura evides Jordan and Hubbs, 1925: 303 (Japan).

Four specimens of this mid-water feeding gobiid collected in about 20 m. This species has been recorded from the Indian Ocean as *P. tricolor.* Unreported specimens at AMS from the Great Barrier Reef; new record for Australia. Widespread in the tropical Indo-W. Pacific.

Quisquilius sp. 3*

One specimen, 31 mm SL collected from a surge channel in 5 m (AMS I. 17417-001). This undescribed species will be treated separately.

Quisquilius sp. 4*

Two specimens, 14-23 mm SL collected 15 m outside the lagoon (AMS I. 17360-013). This undescribed species will be treated in a separate paper revising the genus.

*Valenciennea strigata**

Gobius strigatus Broussonet, 1872: 1 (Tahiti).

A single specimen was speared from 20 m off Phillip Point. Widespread in the tropical Indo-W. Pacific including the Great Barrier Reef.

ACANTHURIDAE . . . SURGEON FISHES (G.R.A.)

*Acanthurus dussumieri**

Acanthurus dussumieri Valenciennes (in Cuvier and Valenciennes), 1835: 201 (Mauritius).

Observed occasionally (1 collected) in the lagoon in 1-6 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Acanthurus mata**

Chaetodon meta (sic) Cuvier, 1829: 224 (no locality given).

Rare, 2 specimens collected in the lagoon in 1-3 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Acanthurus nigrofuscus?**

Chaetodon nigro-fuscus Forsskål, 1775: 64 (Red Sea).

Two individuals, questionably identified as *A. nigrofuscus*, observed outside the lagoon in 25 m by J. Randall. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Acanthurus olivaceus**

Acanthurus olivaceus Bloch and Schneider, 1801: 214 (Tahiti).

One juvenile collected outside the lagoon in 16 m. Widespread in the E. Indies and tropical western Pacific including eastern Australia.

*Acanthurus triostegus**

Chaetodon triostegus Linnaeus, 1758: 274 (Indies).

A school of approximately 75 individuals sighted outside the lagoon in 10 m by G. Allen. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Naso annulatus**

Priodon annulatus Quoy and Gaimard, 1825: 377 (Timor).

One specimen, 47 mm SL collected in the lagoon off Dawson's Point. Widespread in the tropical Indo-W. Pacific, including eastern Australia.

*Naso brevirostris**

Naseus brevirostris Cuvier (in Cuvier and Valenciennes), 1835: 277 (Mauritius, Moluccas, New Guinea).

One specimen collected in the lagoon in 1-4 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Naso herrei**

Naso herrei Smith, 1966: 647 (Philippine Islands).

A single adult observed outside the lagoon in 10 m by J. Randall. Widespread in the tropical W. Pacific.

*Naso hexacanthus**

Priodon hexacanthus Bleeker, 1855a: 421 (Ambon).

A single adult observed outside the lagoon at North Islet in 25 m by J. Randall. Widespread in the tropical Indo-W. Pacific.

Naso unicornis

Chaetodon unicornis Forsskål, 1775: 63 (Red Sea).

Acanthurus unicornis. — Waite, 1900: 207 (Lord Howe Island).

Observed occasionally (1 collected) in lagoon and outer reef habitats in 2-10 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Prionurus maculatus

Prionurus maculatus Ogilby, 1887: 395 (Port Jackson, New South Wales).

Xesurus maculatus. — Waite, 1900: 207 (Lord Howe Island).

Locally common in lagoon and outer reef habitats in 2-30 m. Known from Lord Howe Island and eastern Australia.

*Zebrasoma scopas**

Acanthurus scopas Cuvier (in Cuvier and Valenciennes), 1829: 224 (Banda).

Observed occasionally (2 collected) in rich coralliferous areas of lagoon in 2-8 m. Four unrecorded specimens from Queensland and New South Wales in AMS collection; new record for Australia. Widespread in the tropical Indo-W. Pacific.

ZANCLIDAE . . . MOORISH IDOLS (B.C.R.)

*Zanclus cornutus**

Zanclus cornutus Linnaeus, 1758: 273 (Indies).

Rare, several specimens collected outside the lagoon in 10-15 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

SIGANIDAE . . . SPINEFOOTS (B.C.R.)

*Siganus nebulosus**

Amphacanthus nebulosus Quoy and Gaimard, 1824: 369(Sydney).

One unrecorded specimen (AMS IA. 3793) collected in 1922. Widespread in the Indo-Pacific including eastern Australia.

Siganus sp.*

One specimen (AMS IB. 3285) previously taken at Lord Howe Island in 1955. Woodland (pers. comm.) indicates the specimen may represent a new species, deeper bodied than *S. nebulosus,* which it superficially resembles. More specimens are needed for confirmation.

GEMPYLIDAE . . . BARRACOUTAS AND SNAKE MACKERELS (J.R.P.)

Gempylus serpens

Gempylus serpens Cuvier, 1829: 200 (tropical Atlantic).

Gempylus serpens. — Waite, 1900: 199 (Lord Howe Island).

In addition to the specimen recorded by Waite (AMS I. 3117), one was collected in 1929 (AMS IA. 3796). Tropical and subtropical circumglobal including eastern Australia.

Lepidocybium flavobrunneum

Cybium flavobrunneum Smith, 1849: Pl. 20 (South Africa).

Xenogramma carinatum Waite, 1904a: 158 (Lord Howe Island).

The only Lord Howe Island specimen is the holotype (AMS I. 5599) of Waite's nominal species. Tropical and subtropical circumglobal, including eastern Australia.

Nealotus tripes

Nealotus tripes Johnson, 1865: 434 (Madeira).

Machaerope latispinis Ogilby, 1899: 737 (Lord Howe Island).

Twenty-four specimens in AMS collections, mostly found washed up on Lagoon Beach. Parin and Bekker (1972) have placed in synonymy Ogilby's genus and species, noting a second element in each ventral fin that is present in all the Lord Howe specimens; Iwai and Nakamura (pers. comm.) state the Japanese specimen described by Matsubara and Iwai (1952) also has a small second ventral element. Ogilby's type was registered in the QM. Tropical and subtropical circumglobal, midwater.

SCOMBRIDAE . . . MACKERELS AND TUNAS (B.C.R.)

Acanthocybium solandri

Acanthocybium solandri Cuvier (in Cuvier and Valenciennes), 1832: 141 (Tuamotu Islands).

Acanthocybium solandri. — Whitley, 1964a: 250 (Lord Howe Island).

One specimen caught by a fisherman at Ball's Pyramid during our visit. Circumglobal distribution including eastern Australia.

Katsuwonus pelamis

Scomber pelamis Linnaeus, 1758: 297 (tropical pelagic).

Katsuwonus pelamis. — Whitley, 1964a: 232 (Lord Howe Island).

One specimen (AMS IA. 731) collected in 1922. Widespread in the Indo-Pacific including eastern Australia.

Sarda australis?

Pelamys australis Macleay, 1881: 557 (Port Jackson, New South Wales).

Sarda australis Whitley, 1964a: 236 (Lord Howe Island).

No specimens could be found to substantiate the inclusion of New Guinea and Lord Howe Island on the range map of this species (Whitley, 1964a). According to Collette (pers. comm.), the species is known from southern Queensland to Bass Strait and Norfolk Island.

Scomber australasicus

Scomber australasicus Cuvier (in Cuvier and Valenciennes), 1831: 491 (King Georges Sound, Western Australia).

Pneumatophorus australasicus. — Whitley, 1964a: 248 (Lord Howe Island).

Known also from eastern and western Australia and New Zealand.

Thunnus albacares

Scomber albacares Bonnaterre, 1788: 140 (Madeira).

Neothunnus macropterus. — Whitley, 1964a: 234 (Lord Howe Island).

Circumglobal distribution in tropical and subtropical waters including eastern Australia.

ISTIOPHORIDAE . . . MARLINS AND SAILFISHES (B.C.R.)

Istiophorus platypterus

Xiphias platypterus Shaw and Nodder, 1792: Pl. 8 (Indian Ocean).

Istiophorus ludibundus. — Whitley, 1964a: 245 (Lord Howe Island).

The record of this species from Lord Howe Island is based on a magazine article and photograph (Angler's Digest, December 1960, p. 28 and fig.). Widespread in the Pacific including eastern Australia.

Makaira indica

Tetrapturus indicus Cuvier (in Cuvier and Valenciennes), 1831: 286 (Sumatra).

Istiompax australis. — Whitley, 1944: 254 (Lord Howe Island).

A 100 kg specimen was trolled between Ball's Pyramid and Lord Howe Island by a local fisherman; the specimen was not saved. It carried 2 specimens of *Remora brachyptera.* Widespread in the Indo-Pacific including eastern Australia.

CENTROLOPHIDAE . . . RAFT FISHES (J.R.P.)

Schedophilus maculatus?

Schedophilus maculatus Günther, 1860: 412 (China Sea).

Schedophilus maculatus. — Waite, 1894: 219 (Lord Howe Island).

Five specimens (49-75 mm SL) in AMS collection. Haedrich and Horn (1972) distinguished *S. maculatus* and *S. ovalis* on the basis of vertebrae (29 vs 25), dorsal rays (27-29 vs 31-32) and lower arch gill rakers (13-14 vs 16). All of these specimens have 29 vertebrae and 26-29 dorsal rays, but the lower gill rakers range from 15-16. A paratype (AMS IA. 5565) of Whitley's (1933) *Hoplocoryphis physaliarum* from New South Wales also falls in this range (the holotype has been lost). Southern Ocean (Haedrich and Horn, 1972), including eastern Australia and Kermadec Islands.

*Schedophilus ovalis?**

Centrolophus ovalis Cuvier (in Cuvier and Valenciennes), 1833: 346 (Mediterranean).

One small specimen (AMS IB. 5494) collected in 1962. This specimen has 25 vertebrae, 17 lower gill rakers, but only 26 dorsal rays. Mediterranean, eastern Atlantic, and Australia (Haedrich and Horn, 1972).

NOMEIDAE . . . EYEBROW FISHES (D.F.H.)

Cubiceps baxteri

Cubiceps baxteri McCulloch, 1923a: 15 (Lord Howe Island).

Two specimens are known from Lord Howe Island, the holotype, a 371 mm specimen (AMS IA. 686), and a 285 mm specimen (AMS I. 16150-003). This species differs from C.

caeruleus in having more numerous scale rows on the body (60-62), a broad tongue, a single row of pointed teeth on the tongue and a small patch of pointed teeth on the vomer followed by a single row of small pointed teeth posteriorly. The palatine teeth do not reach the anterior patch of vomerine teeth. Haedrich (1967) suggested that this species might be the adult of *C. caeruleus*. Provisionally we follow McCulloch (1923a) in recognizing *C. baxteri* as distinct from *C. gracilis*; however, a thorough revision of the genus may alter the names used here. Known from Lord Howe Island and New South Wales.

Cubiceps caeruleus?

Cubiceps caeruleus Regan, 1914: 15 (Three Kings Islands, New Zealand).

Cubiceps gracilis. — Waite, 1904a: 162 (Lord Howe Island).

This species is known from the 80 mm (AMS I. 5608) specimen recorded by Waite (1904) and figured by McCulloch (1923a) and a second 180 mm specimen (AMS IA. 1393). The smaller specimen has pointed teeth on the vomer, but the larger has small, knobby, short teeth on the vomer and an oval patch on the tongue. The tongue is pointed, there are few scale rows on the body (48-52), and 21 pectoral rays. The palatine teeth extend forward to beside the oval patch of vomerine teeth. The premaxilla is not covered by the preorbital, as it is in *C. baxteri*. Known from northern New Zealand.

Nomeus gronovii

Gobius gronovii Gmelin, 1789: 1205 (Atlantic Ocean).

Nomeus gronovii.— Waite, 1901: 39 (Lord Howe Island).

Known from Lord Howe Island from 1 specimen (AMS I. 4622). Haedrich (1967) regards the genus as monotypic. Worldwide in temperate and tropical seas.

Psenes pellucidus

Psenes pellucidus Lütken, 1880: 516 (Java).

Caristioides amplipinnis Whitley, 1948: 88 (Lord Howe Island).

Known from Lord Howe Island from the holotype of *Caristioides amplipinnis*, a beach-stranded specimen (AMS IA. 1395). Haedrich (1967) placed this nominal species in the synonymy of *P. pellucidus*. Known from Atlantic, Pacific, and Indian Oceans.

TETRAGONURIDAE . . . SQUARETAILS (D.F.H.)

Tetragonurus atlanticus

Tetragonurus atlanticus Lowe, 1839: 79 (Atlantic Ocean).

Ctenodax wilkinsoni Macleay, 1885: 2 (Lord Howe Island).

Tetragonurus cuvieri. — Waite, 1904b: 201 (Lord Howe Island).

None collected in 1973. This species is known from the type of *Ctenodax wilkinsoni* (AMS I. 5134) and 2 recently collected specimens (AMS I. 16150-002). Grey (1955) listed *wilkinsoni* as a junior synonym of *T. atlanticus*. Worldwide distribution, oceanic.

BOTHIDAE . . . LEFT HANDED FLOUNDERS (D.F.H.)

*Bothus mancus**

Pleuronectes mancus Broussonet, 1782 (Tahiti).

One specimen collected from sand at Middle Beach and is deposited in the Bishop Museum. Widespread in the tropical Indo-W. Pacific.

*Bothus myriaster**

Rhombus myriaster Temminck and Schlegel, 1846: 181 (Japan).

Known from Lord Howe Island on the basis of 1 specimen (AMS I. 1433) taken in 1923. The pectoral fin is slightly shorter than is reported for *B. myriaster*. Known from Japan, Taiwan, and Lord Howe Island.

Bothus pantherinus

Rhombus pantherinus Rüppell, 1831: 121 (Red Sea).

Platophrys pantherinus. — Waite, 1898: 61 (Lord Howe Island).

Five specimens collected from sand, 3 from the lagoon and 1 from 15 m off Phillip Point. Widespread in the tropical Indo-W. Pacific.

Crossorhombus sp.

One specimen (BPBM 14892, 102 mm SL) of this undescribed species collected from Comet's Hole in the lagoon over sand. Three specimens previously collected are at AMS (AMS I. 5386, IA. 2647, IB. 5984).

CYNOGLOSSIDAE . . . TONGUE-SOLES (D.F.H.)

Paraplagusia unicolor

Plagusia unicolor Macleay, 1881: 138 (Port Jackson, New South Wales).

Plagusia unicolor. — Ogilby, 1893: 163 (Lord Howe Island).

This species is known from Lord Howe Island from 2 specimens (AMS IA. 2417 and I. 12096) collected before 1928. Ogilby (1893) recorded it from Lord Howe Island based on a sight record. Known from southern Queensland, New South Wales, and Tasmania.

SOLEIDAE . . . SOLES (D.F.H.)

Aseraggodes haackeanus

Solea (Achirus) haackaena Steindachner, 1883: 95 (South Australia).

Solea ramsayi Ogilby, 1889: 70 (Lord Howe Island).

Two specimens collected from sand outside the lagoon in 5-25 m. Other specimens, including the holotype of *Solea ramsayi* are at AMS. Lord Howe Island and New South Wales specimens have generally been recognized as belonging to the subspecies *A. haackeanus ramsayi*. Insufficient material is currently available to resolve the taxonomic status of the 2 nominal subspecies. Known from southern Australia and Lord Howe Island.

*Aseraggodes macleayanus**

Solea macleayana Ramsay, 1881: 462 (New South Wales).

One specimen at AMS (I. 12664) from Lord Howe Island. Also known from Queensland and New South Wales.

BALISTIDAE . . . TRIGGERFISHES (G.R.A.)

*Balistoides conspicillum**

Balistes conspicillum Bloch and Schneider, 1801: 474 (Indian Seas).

One adult specimen collected in 35 m at Ball's Pyramid. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Rhinecanthus aculeatus**

Balistes aculeatus Linnaeus, 1758: 328 (India).

One specimen from Lord Howe Island (AMS IB. 5728) collected in 1962 by J. Booth. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Rhinecanthus rectangulus**

Balistes rectangulus Bloch and Schneider, 1801: 465 (Indian Ocean).

One specimen from Lord Howe Island (AMS IB. 5711) collected in 1962 by J. Booth. Widespread in the tropical Indo-W. Pacific including eastern Australia.

*Sufflamen chrysopterus**

Balistes chrysopterus Bloch and Schneider, 1801: 266 (Indian Ocean).

A single adult observed in 10 m at Ball's Pyramid by G. Allen. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Sufflamen fraenatus

Balistes fraenatus Latreille, 1804: 74 (Madagascar and Polynesia).

Pachynathus capistratus. — Waite, 1903: 38 (Lord Howe Island).

Observed occasionally (2 collected) in rocky areas outside the lagoon in 10-45 m. Relatively common at Ball's Pyramid. Widespread in the tropical Indo-W. Pacific including eastern Australia.

MONACANTHIDAE . . . LEATHERJACKETS (G.R.A.)

Alutera monoceros

Balistes monoceros Linnaeus, 1758: 327 (near Hong Kong).

Alutera monoceros. — Waite, 1900: 207 (Lord Howe Island).

The 2 specimens recorded by Waite (1900) at AMS (I. 3309-10). Circumglobal distribution including eastern Australia.

Brachaluteres baueri

Aleuterius baueri Richardson, 1846: 68 (coast of Australia).

Brachaluteres baueri. — Waite, 1903: 38 (Lord Howe Island).

We provisionally agree with Waite's (1903) identification. *B. baueri* is a poorly known form described from a drawing. Specimens of *Brachaluteres* at AMS from the New South Wales mainland are identifiable as *B. jacksonianus* (Quoy and Gaimard), previously referred to as *B. trossulus* (Richardson), a junior synonym. It is possible that the Lord Howe Island population represents a geographic colour variant of *jacksonianus* in which the typical

pattern of small spots is replaced by one consisting of a series of narrow longitudinal stripes. The fin ray counts of the Lord Howe Island specimens fall within the normal range for *jacksonianus*.

Cantherines dumerili

Monacanthus dumerilii Hollard, 1854: 361 (Mauritius).

Monacanthus howensis Ogilby, 1889a: 73 (Lord How Island).

Two specimens collected outside the lagoon in 15-35 m. Widespread in the tropical Indo-W. Pacific.

Cantherines longipinnis

Amanses (Cantherines) longipinnis Fraser-Brunner, 1941: 198 (Lord Howe Island).

One specimen collected off North Rock in 25 m. Known previously only from 4 type specimens deposited at AMS. Apparently confined to Lord Howe Island.

*Cantherines pardalis**

Monacanthus pardalis Rüppell, 1835: 57 (Red Sea).

Two specimens collected outside the lagoon in 10-15 m. Widespread in the tropical Indo-W. Pacific. Previously reported from Australia as *C. brunneus*.

Navodon analis

Pseudomonacanthus analis Waite, 1904a: 173 (Lord Howe Island).

Observed occasionally (5 collected) outside the lagoon in 20-40 m. Known only from Lord Howe Island.

Pervagor melanocephalus

Monacanthus melanocephalus Bleeker, 1853b: 95 (Solor).

Monacanthus nitens. — Waite, 1898: 62 (Lord Howe Island).

Canthidermis maculatus or *?Canthidermis* sp. Ogilby, 1899: 738 (Lord Howe Island).

Monacanthus alternans Ogilby, 1899: 741 (Lord Howe Island and New South Wales).

Observed infrequently (4 collected) outside the lagoon in 15-30 m. Usually seen in pairs. We are unable to locate the Lord Howe Island syntype of *Monacanthus alternans*. However, the New South Wales syntype, a 35 mm SL specimen at AMS, represents the post larval stage of *P. melanocephalus*. Widespread in the E. Indies and tropical western Pacific including eastern Australia.

OSTRACIONTIDAE . . . BOXFISHES (G.R.A.)

Lactoria cornuta

Ostracion cornutus Linnaeus, 1758: 331 (India).

Ostracion cornutus. — Waite, 1903: 37 (Lord Howe Island).

One specimen observed (also collected) in the lagoon in 1-2 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Lactoria fornasini

Ostracion fornasini Bianconi, 1846: 115 (Mozambique).

Ostracion fornasini. — Ogilby, 1889a: 73 (Lord Howe Island).

Paracanthostracion lindsayi levior Whitley, 1933: 105 (Lord Howe Island).

Observed occasionally (1 collected) in the lagoon in 1-2 m. Widespread in the tropical Indo-W. Pacific.

Ostracion cubicus

Ostracion cubicus Linnaeus, 1758: 332 (India).

Ostracion tuberculatum. — Waite, 1900: 207 (Lord Howe Island).

Observed occasionally (4 collected) outside the lagoon in 10-35 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Triorus reipublicae

Lactophrys concatenatus (non Bloch). — Ogilby, 1889a: 73 (Lord Howe Island).

Lactophrys reipublicae Ogilby, 1913: 92 (Australia).

Lord Howe Island specimens at AMS. Reported from New Guinea, Australia, and Lord Howe Island.

TETRAODONTIDAE . . . TOADOS OR PUFFERS (D.F.H. & G.R.A.)

Arothron hispidus

Tetraodon hispidus Linnaeus, 1758: 333 (India).

Tetraodon hispidus. — Ogilby, 1889a: 74 (Lord Howe Island).

One specimen collected in the lagoon. Widespread in the tropical Indo-W. Pacific.

Arothron meleagris

Tetrodon meleagris Lacepede, 1798: 505 (Asia).

Ovoides meleagris. — Waite, 1900: 207 (Lord Howe Island).

Recorded from 2 specimens at AMS. Widespread in the tropical western Pacific.

Arothron stellatus

Tetrodon stellatus Bloch and Schneider, 1801: 503 (Mauritius).

Tetraodon stellatus. — Waite, 1898: 62 (Lord Howe Island).

Four specimens collected between 1898 and 1918 at AMS. Although *A. stellatus* is regarded as having dark spots on the dorsal fin, the Lord Howe Island and Australian specimens lack these markings. *A. stellatus* is also usually recorded as lacking stripes on the belly, but this character is variable in our material. If the spotting of the dorsal fin proves significant, the present specimens will take the name *A. aerostaticus* (Jenyns). Widespread in the tropical Indo-W. Pacific.

Canthigaster callisternus

Tetrodon callisternus Ogilby, 1889a: 74 (Lord Howe Island).

Observed occasionally (16 collected) outside the lagoon in 15-45 m. Juveniles more abundant than adults. Our material includes a 225 mm SL individual, the largest known specimen in this circumtropical genus. Known from New South Wales, Lord Howe Island, Norfolk Island, Kermadec Islands, and northern New Zealand.

*Canthigaster janthinopterus**

Tropidichthys janthinopterus Bleeker, 1855a: 429 (Ambon).

One specimen observed (also collected) outside the lagoon in 25 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Canthigaster valentini

Tetraodon valentini Bleeker, 1853a: 130 (Ambon).

Tetrodon valentini. — Ogilby, 1889a: 74 (Lord Howe Island).

Observed infrequently (4 collected) in both lagoon and outer reef habitats in 2-20 m. Widespread in the tropical Indo-W. Pacific including eastern Australia.

Lagocephalus sceleratus

Tetrodon sceleratus Gmelin, 1788: 1444 (New Caledonia).

Pleuracanthus sceleratus. — Whitley, 1933: 106 (Lord Howe Island).

Recorded from two specimens collected in 1920 and 1922 (AMS IA. 126 and IA. 944). Widespread in the tropical Indo-W. Pacific.

Torquigener altipinnis

Tetrodon altipinnis Ogilby, 1891: 110 (Lord Howe Island).

Known from the holotype (a skin) and one adult in alcohol (AMS I. 127). Ogilby (1891) recorded white spots on the dorsal surface of the body, but the preserved specimen lacks these marks. No other differences are apparent. The specimen was beach-stranded in poor condition. The species has 10 dorsal rays, 8 anal rays, 16 pectoral rays, and pointed dorsal and anal fins. The body spines are weak and extend from between the eyes nearly to the dorsal origin, on the ventral surface from the chin to the anus, and on the sides of the belly and anal fins. The colour is brown or grey, with several white spots dorsally. It is possible that *T. perlevis* (Ogilby) from Queensland is a synonym. This species was previously known only from Lord Howe Island, but specimens from Norfolk Island and New South Wales are deposited at AMS.

Torquigener hamiltoni

Tetraodon hamiltoni Gray and Richardson, 1843: 226 (New South Wales).

Amblyrhynchotus oblongus. — Waite, 1901: 207 (in part, Lord Howe Island juveniles only).

Recorded from 2 specimens from Lord Howe Island collected before 1900 and mentioned by Waite (1901). Also known from Western Australia, South Australia, Victoria, New South Wales, Tasmania, and New Zealand.

Torquigener pleurogramma

Tetrodon pleurogramma Regan, 1903: 300 (New South Wales).

Amblyrhynchotus oblongus. — Waite, 1901: 207 (Lord Howe Island, adults).

Tetraodon hypselogenion. — Waite, 1903: 38 (Lord Howe Island).

Sphaeroides altipinnis. — McCulloch and Waite, 1916: 450 (in part, Lord Howe Island, other than holotype of *T. altipinnis*).

Tetraodon lacrymatus. — Whitley, 1927b: 8 (Lord Howe Island).

Although McCulloch and Ogilby (1916) regarded this species as a synonym of *T. altipinnis,* there are several important differences. *T. pleurogramma* has larger body spines, fewer pectoral rays (14 or 15), and a prominent black or brown stripe on the body and narrow bars under the eye, which are lacking in *T. altipinnis.* Also known from Western Australia, South Australia, New South Wales, and southern Queensland.

DIODONTIDAE . . . PORCUPINE FISHES (G.R.A.)

Chilomycterus orbicularis

Diodon orbicularis Bloch, 1785: 73 (no locality given).

Euchilomycterus quadradicatus Waite, 1900: 208 (Lord Howe Island).

Three specimens at AMS including the holotype of Waite's nominal species (I. 4338). Widespread in the tropical Indo-W. Pacific.

*Diodon holocanthus**

Diodon holocanthus Linnaeus, 1758: 335 (India).

Rare, 1 individual observed outside the lagoon in 25 m by J. Randall. In addition, we examined 2 unreported specimens from Lord Howe Island collected in 1918 (AMS I. 14366-7). Circumglobal distribution including eastern Australia.

Diodon hystrix

Diodon hystrix Linnaeus, 1758: 335 (India).

Diodon hystrix. — Ogilby, 1889a: 74 (Lord Howe Island).

Eight Lord Howe specimens in AMS collection. Circumglobal distribution including eastern Australia.

MOLIDAE . . . SUNFISHES (B.C.R.)

Mola ramsayi

Orthragoriscus ramsayi Giglioli, 1883: 315 (Sydney, New South Wales).

Mola ramsayi. — Whitley, 1933b: 210 (Lord Howe Island).

The only Lord Howe specimen is the juvenile figured by Whitley (AMS IA. 2423). Known also from eastern Australia.

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