

# FISHES FROM THE CORAL SEA AND THE SWAIN REEFS\*

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Plates 8-10 Figs. 1-15

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## INTRODUCTION

The scattered islets and reefs in or near the Coral Sea to the east of Queensland are very remote and few zoologists have visited them. An account of the only zoological collection made at Elizabeth and Middleton Reefs appeared in the *Australian Zoologist* 8 (4), 1937: 199-273.

Over the last 15 years or so the Australian Museum has received several well-preserved collections of fishes from Queensland, the Coral Sea, New Caledonia, Lord Howe Island and other South Pacific localities. The fish-fauna of Lord Howe Island has been catalogued by Waite (1904, *Rec. Aust. Mus.* 5 (3): 187-230; 180 species listed), but many new records have appeared in the last few decades.

The Australian Museum's acquisitions from New Caledonia were listed by Whitley (1961, *Proc. Roy. Zool. Soc. N.S. Wales* 1958-59: 60-65) but a valuable collection of 456 fishes made by Dr. D. F. McMichael from remote islands in the Coral Sea when he was aboard H.M.A.S. *Gascoyne* in 1960 has not hitherto been reported upon, except for the description of one new species (Whitley, 1962, *N. Queensland Nat.* 30 (131): 3). This collection contains many Melanesian species and has been of value in studies on their distribution; several novel species or ones of special interest are described or figured in this paper in association with the 577 fishes obtained during the brief visit to Swain Reefs, at the south-eastern end of the Great Barrier Reef, Queensland, of the Australian Museum's 1962 Expedition, which is the main object of this report. Altogether 102 different species were collected, but only the more interesting sharks and fishes are dealt with below.

Most of them are conspecific with Queensland coral reef forms (especially with those already known from the Capricorn and Bunker Groups) and with New Caledonia and Lord Howe Island species and all of them may be expected to range over a wide area of Indo-Pacific seas when their distribution is better known. Only three of the Swain Reefs species appear to be new: a shark related to a Papuan one, a sea-horse also dredged in Moreton Bay, and an Apogonid with no known affiliations.

Two tunnies of possible commercial importance occurred in schools during our visit: the Frigate Mackerel, *Auxis thazard*, and the Mackerel Tuna, *Euthynnus wallisi*.

Some species of fishes (notably parrot and unicorn fishes) were seen but not collected—they are not listed here. Larval fishes and a few "difficult" species have not been identified.

\* Including results of the Australian Museum 1962 Swain Reefs Expedition.

By hand-lining we obtained Red Emperor, *Diacope sebae*; Coral Cod, *Plectropomus maculatus*; Emperor-Sweetlips, *Lethrinus chrysostomus*, also *Variola louti* and *Epinephelus forsythi*, all good food-fishes.

Time did not permit investigation of the fascinating inter-relationships of fishes with invertebrates and other fishes. Parrot-fishes were, however, observed to upend themselves to be cleaned by *Labroides dimidiatus*. The association between a sea-urchin and the fish *Siphamia zaribae* and a shrimp (Whitley, 1959, *Proc. Roy. Zool. Soc. N.S. Wales* 1957-58: 15-17) already recorded from the Capricorn Group, was observed afresh. When the urchin was taken from the water some of the fishes sheltered in the collector's trouser-legs! Some *Lovamia* were practising buccal incubation. Fertile eggs were found in a female *Merogymnus jacksoniensis* suggesting that internal fertilization takes place, although it is not known if this would be followed by oral incubation as in its West Indian ally, *Opisthognathus* (see Böhlke and Chaplin, 1957, *Science* 125 (3243), Feb., 22: 353, fig. 1). *Dascyllus aruanus* was scarce although its usual host coral was present, and there were few *Amphiprion* with sea-anemones. Mimicry of a toadfish (*Canthigaster*) by a leatherjacket (*Paraluteres*) was noticed; several blennies (*Meiacanthus*) were nesting in empty gastropod shells and juveniles floated under sargasso weed. Other fishes were attacked by crustacean parasites.

### Acknowledgments

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The angling experience of Mr. Athel D'Ombraïn, of our party, was of great value in the course of the expedition, and Mr. Robert Poulson's pilotage amongst the reefs as well as his hospitality at Heron Island were much appreciated. The Great Barrier Reef Committee's Marine Biological Station, Heron Island, kindly made facilities and specimens available.

Excellent photographs from fresh specimens were taken by Mr. Anthony Healy, to whose skill I am indebted for several illustrations to this report and for kodachrome records of transient life-colours.

I am obliged to my former assistant, Miss L. Carter, for help in arranging this paper for the press and in preserving and cataloguing the specimens.

### HISTORICAL NOTES ON SWAIN REEFS

Because of their isolation, distance from suitable ports, and the dangerous reefs in their waters, the Swain Reefs have received little attention from naturalists or fishermen until recent years. The earliest published reference to them seems to be Matthew Flinders' remarks (1814, *Voy. Terr. Austr.* 2: 101) that the easternmost parts of the barrier are probably connected with those further distant which Captain Swain of the *Eliza* fell in with in 1798. "If so, the Barrier Reefs will commence as far south-eastward as the latitude 22° 50' and longitude about 152° 40' and possibly still further . . ." "Mr. Swain did, indeed, get out at the latitude 22°; but it was by a long, and very tortuous channel."

## MAP OF THE CORAL SEA

