

# SEA SNAKES COLLECTED AT CHESTERFIELD REEFS, CORAL SEA

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## INTRODUCTION

This report describes a collection of sea snakes made at the Chesterfield Reefs June 19-25, 1981. We know of no previous collection of sea snakes from this locality. The Chesterfields are a group of reefs and sand cays located in the southern part of the Coral Sea about 945 km ENE of Rockhampton, Queensland and about 630 km almost due west of the northern tip of New Caledonia (Fig. 1). Troughs with depths of 1000-3000 m separate them from New Caledonia and the Great Barrier Reef complex. Loop Islet at the southern tip of the group (Fig. 2) lies at 19° 57' south and 158° 28' east.

## METHODS

Most snakes were captured in nets while snorkling or scuba diving at depths of 20 m or less. Underwater visibility was generally good, and water temperatures 22-25°C. A few snakes were netted from small boats or from the R/V Acheron or were found stranded on sand cays. A total of 79 snakes was collected and 34 preserved. These have been deposited in the Field Museum of Natural History, Chicago, and the Australian Museum, Sydney. Six species were identified in the material collected.

## RESULTS

Acalptophis peronii (4 collected; 2 preserved). All specimens were taken over relatively flat, open areas of sand at depths of about 10-15 m. The smallest had a total length of 45 cm, the largest measured about 85 cm.

Aipysurus duboisii (2 collected and preserved). One specimen was collected in a narrow coral passage at a depth of 14 m; the other was found stranded and dead on Anchorage Islet. Total lengths were 83 and 74 cm.

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Aipysurus laevis (2 collected; 1 preserved). One taken on the side of a bommie at a depth of about 6 m; the other over open sand at about 15 m. Both were small adults about 1 m in total length.

Emydocephalus annulatus (15 collected; 7 preserved). Five were found over open sand, the others in coral passages or around bommies. Depths varied from 3 to 15 m. One large snake was probing crevices in a bommie while two small fish seemed to be harassing it by biting at its neck. It reacted by shaking them off occasionally. After about 10 minutes the snake glided into deeper water and continued to explore coral rubble; the fish did not follow. Another snake had its head and forebody in a hole in the sand. A courting pair of snakes were observed June 21. Three juveniles 31-34 cm in total length were taken. The smallest of these was lying dead on the bottom. Five of 6 preserved adults were uniformly black; one large female showed numerous cream-colored scales irregularly scattered. Two adults of the ringed pattern morph were seen.

Hydrophis sp. (40 collected; 20 preserved). This small-headed sea snake was plentiful off Loop Islet in an area of flat, open sand lightly covered with filamentous algae at a depth of 7-11 m. The snakes were usually seen lying on the bottom often with the head and forebody buried in sand or were swimming slowly a few centimeters above the bottom. Five were collected by dip-netting from the ship while anchored off Passage Islet at night and others were seen in the illuminated zone but escaped. Several of the snakes were juveniles 40-50 cm long. No food was disgorged by newly captured snakes, but the digestive tract of one adult contained a brown, pasty, homogeneous material. These snakes are similar to specimens collected at reefs of the Sahul Shelf and referred to Hydrophis melanocephalus (Cogger, 1975). They also fit the description of H. melanocephalus from Fiji (Guinea, 1981) and probably are identical with the species taken at Saumarez Reef and identified as Microcephalophis gracilis (Heatwole, 1975). However, they appear to differ significantly from both melanocephalus and gracilis from Asian waters and probably represent an undescribed taxon whose status is currently under investigation.

Pelamis platurus (11 collected; 2 preserved). Eight of these snakes were collected June 23 in a slick on the lagoonal side of the inlet north of Passage Islet. The others were found stranded on Loop and Anchorage Islets. One was seen at night near the ship. Desiccated remains of 5 other Pelamis were found on beaches. One had been incorporated into the nest of a booby. Four of the snakes collected were juveniles about 35-40 cm in total length. Two of the others were very dark, large individuals, one female having a total length 98 cm.

We presume all the species are residents of the Chesterfields rather than strays, for multiple individuals of all were collected. Collection of juveniles of 4 species suggests local breeding.



## DISCUSSION

Table 1 summarizes information of sea snake distribution along the Queensland Coast, the southern part of the Great Barrier Reef, the Chesterfield Reefs, New Caledonia and the Loyalty Islands, and Fiji. Species diversity is greatest along the Queensland coast probably because species with preference for turbid water and a muddy bottom such as Aipysurus eydouxi, Lapemis hardwickii, Enhydrina schistosa, and Hydrophis elegans find favorable habitat here but not on the Great Barrier Reef or eastward. The first three species have extensive ranges indicating good powers of dispersal. Mud and turbidity may largely exclude Emydocephalus annulatus, a snake of clear water and coral reefs, from the coastal zone. Aipysurus laevis and A. duboisii are characteristic coral reef species that also are locally plentiful along the Queensland coast. Pelamis platurus is not known to breed along the Queensland coast, although beach-washed individuals are encountered regularly. It is uncommon on the Great Barrier Reef but appears to have a well-established population in the Chesterfields. Laticauda colubrina and L. laticaudata are reported to be common in waters around New Caledonia and the Loyalty Islands and also occur at Fiji. They are unknown from the Great Barrier Reef and recorded from the eastern coast of Australia only very rarely. They appear to have reached New Caledonia from the northwest by dispersal along the New Hebrides Ridge. Availability of suitable daytime resting and seasonal nesting areas may be vital factors influencing distribution of these oviparous sea snakes. Astrotia stokesii and Hydrophis ornatus are wide-ranging and presumably eurytopic species that may eventually be found in the Chesterfields.

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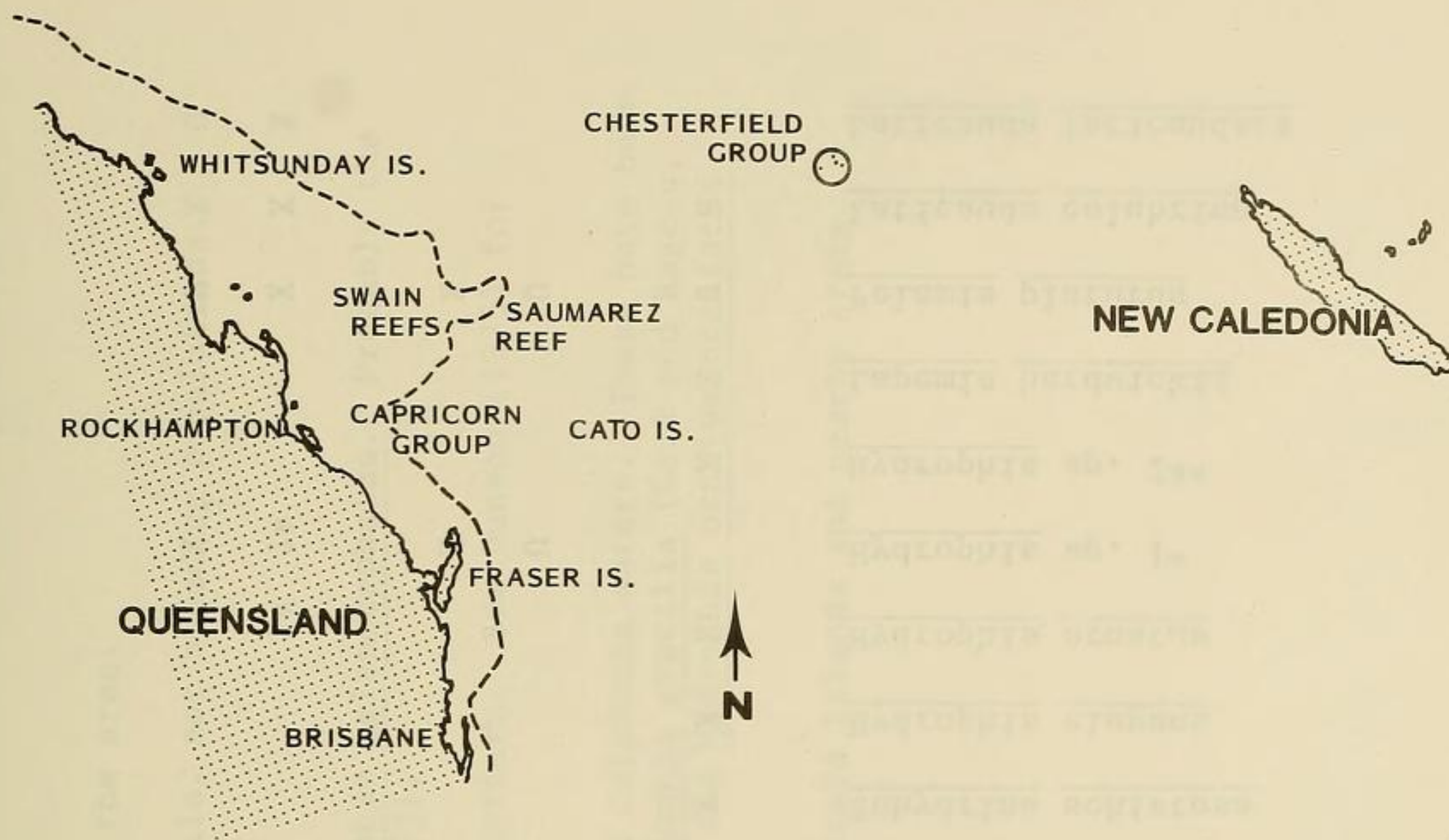


Fig. 1. Location of Chesterfield group with respect to New Caledonia and the Queensland coast. Dashed line marks approximate outer limit of Great Barrier Reef complex.

Fig. 2. Chesterfield Group showing localities mentioned in text. Figures indicate water depths in fathoms.

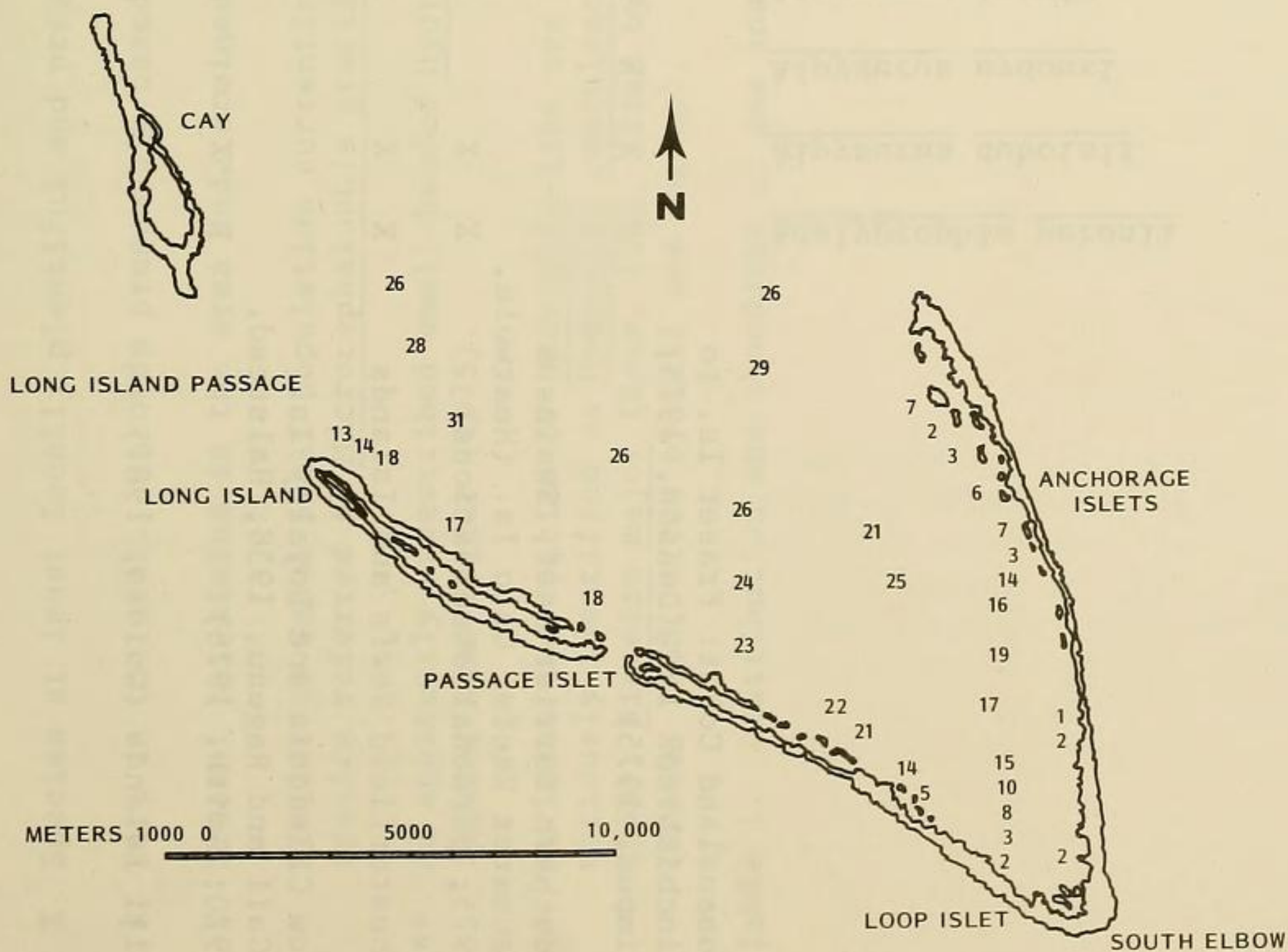




TABLE I

	<u>Acalyptophis peronii</u>	<u>Aipysurus duboisii</u>	<u>Aipysurus eydouxi</u>	<u>Aipysurus laevis</u>	<u>Astrotia stokesii</u>	<u>Disteira kingii</u>	<u>Disteira major</u>	<u>Emydocephalus annulatus</u>	<u>Enhydrina schistosa</u>	<u>Hydrophis elegans</u>	<u>Hydrophis ornatus</u>	<u>Hydrophis sp. 1*</u>	<u>Hydrophis sp. 2**</u>	<u>Lapemis hardwickii</u>	<u>Pelamis platurus</u>	<u>Laticauda colubrina</u>	<u>Laticauda laticaudata</u>
Queensland Coast: Fraser Is. to Hinchinbrook Is. (Dunson, 1975; Limpus, 1975)	R	X	X	X	X	X	X	R	X	X	X	X	X	X			
Southern Barrier Reef, Swains & Saumarez Reefs, Cato Is. (Heatwole, 1975; personal observations)	X	X	X	X	X	R		X				U		U			
Chesterfield Reefs and Islands	X	X		X				X				X		X			
New Caledonia and Loyalty Is. (Gail and Rageau, 1958; Halstead, 1970; Smith, 1926)	R	X		X			??	X			??	??			X	X	X
Fiji Islands (Guinea, 1981)												X		U	X	X	U



Table 1 (continued)

- X Species at least locally plentiful and presumably breeding in the area.
- R Rare in the area. Records presumably based on stray individuals, not breeding populations.
- U Present but status in the area undetermined.
- \* Similar to Sahul Shelf population currently referred to Hydrophis melanocephalus. Probably the species referred to Microcephalophis gracilis by Heatwole (1975).
- \*\* An apparently undescribed small-headed Hydrophis with ornate pattern. See Dunson (1975) for figure; also Cogger (1975).
- ?\* At least two species of Hydrophis-like sea snakes occur in New Caledonia waters. These have been variously identified as Hydrophis caeruleus and Microcephalophis gracilis (Gail and Rageau, 1958), Disteira major (Roux, 1913, cited by Gail and Rageau), and Hydrophis ornatus ocellatus (Forne, 1888, cited by Gail and Rageau).

Table 1. Distribution and abundance of sea snakes in the Chesterfield Islands and nearby areas.