

## ON SEA SNAKES OCCURRING IN MADRAS WATERS

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### ABSTRACT

Systematics of 10 species of sea snakes belonging to 7 genera from Madras Coast have been discussed. Keys for identification are provided.

### INTRODUCTION

THE seas of India harbour a rich sea snake fauna, with a strong endemic component and greater species diversity. However, the studies on Indian sea snakes have been accorded insufficient attention thus far. Interest in the studies on sea snakes has grown markedly in recent years because the venoms of these marine reptiles are considered as most powerful animal toxins.

Sea snakes of the Madras Coast have been reported upon by Aiyar (1907), M'kenzie (1820) and Wall (1918). Since the publication of Smith's (1926) classic Monograph of the family Hydrophiidae, Voris (1969) and McDowell (1969, 1972) have proposed major changes in the nomenclature and classification of the perplexing genus *Hydrophis* which seems to be undergoing rapid evolution. Pending a reassessment of the classification of the family and its wider acceptance and application, I have adopted Smith's (1943) classification here. The principal aim of this paper is to review the current knowledge of taxonomy and distribution of sea snakes occurring in the Madras waters, and to present a simplified field key with emphasis on those characters which can be readily examined in the field. It is hoped that this paper will be a useful reference work and stimulating guide for further researches.

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### MATERIAL AND METHODS

During a preliminary survey of the sea snake fauna of the Madras Coast (1972-1977), some 50 specimens were collected. Majority of them were netted by fishermen at Triplicane, Royapuram and Santhome Beaches. The narrow-headed species of *Hydrophis*, *Microcephalophis* and *Kerilia* were caught by trawlers operated in the mid-sea, 12-20 miles off the Marina and Madras Harbour. Most of the specimens of the common sea snake (*Enhydrina schistosa*) were netted by fishermen in the shallow and muddy estuaries of Ennore and Adayar during the monsoon season (July-December). Some specimens were obtained when they were washed up alive or dead on the beaches.

## KEY TO THE GENERA

1. Maxillary bone extending forwards beyond the palatine.....*Kerilla* (*K. jerdoni*)  
Maxillary bone not extending forwards beyond the palatine... ..2
2. Mental shield elongate.....*Enhydrina* (*E. schistosa*)  
Mental shield not elongate.....3
3. Ventrals broad anteriorly, narrow posteriorly...*Praescutata* (*P. viperina*)  
Ventrals not so.....4
4. Ventrals undivided throughout and entire.....*Hydrophis*  
Ventrals (except quite anteriorly) either divided or vestigial or absent  
.....5
5. Head very small, body long and very slender anteriorly.....  
.....*Microcephalophis* (*M. gracilis*)  
Head not very small, body not long or very slender anteriorly .....6
6. Head short, chunky, slightly distinct from neck, body short.....*Lapemis*  
Head long, narrow, distinct from neck, body long.....*Pelamis* (*P. platurus*)  
.....  
The genera *Kerilla*, *Enhydrina*, *Praescutata* and *Pelamis* are monotypic.

KEY TO THE SPECIES OF *HYDROPHIS*

1. Head very small, neck long and slender.....*fasciatus*  
Head not so.....2
2. Scales on thickest part of body with rounded or bluntly pointed tips,  
distinctly or feebly imbricate..... 3  
Scales on thickest part of body hexagonal or quadrangular, feebly  
imbricate or juxtaposed.....*caerulescens*
3. Dark bands on body laterally as wide or wider than interspaces.....  
.....*cyanocinctus*  
Dark bands on body laterally narrower than interspaces.....*spiralis*

## SPECIES DESCRIPTION

*Enhydrina schistosa* (Daudin) (Plate II A)

*Material*: Ten juveniles (450-575 mm) and eight adults (860-970 mm) taken from moderately shallow water in the Ennore, Adayar and Kovelong Estuaries and Royapuram.

*Description*: End of the snout extends down over the lower jaw. Chin deeply cleft. Mental elongate and hidden between first infralabials. Body scales keeled and overlapping. Ventrals small, 302-358; indistinct on anterior third of body.

Adults dirty white to pale greenish grey. Body with 45-50 jet black crossbands, widest in the middle and coming to a point on the sides. In some specimens, the markings encircle the body.

*Distribution* : From the Gulf of Oman and the Seychelles eastward to the coast of southern Viet Nam and southward along the Australian Coast to Rockhampton. The commonest sea snake around the Madras Coast.

#### **Hydrophis caeruleus (Shaw)**

*Material* : One specimen (575 mm) from the sea off Marina Beach.

*Description* : Head small and not distinct from neck which is slender.

Body strongly compressed laterally. Scales feebly imbricate or juxtaposed; distinctly keeled V 306. Bluish grey above and lighter below. Back encircled by 36 black bands.

*Distribution* : From coasts of Pakistan, India to China, then south through the Malay Archipelago.

#### **Hydrophis cyanocinctus (Daudin) (Plate I C)**

*Material* : Six specimens (650-1150 mm) from the fishermen's nets.

*Description* : Head moderate. Body long but slender towards the head.

Body scales overlapping and distinctly keeled. Ventrals 312-385, small and slightly broader than the adjacent scales anteriorly.

Body yellowish or olive above. Back with 47-65 sooty cross bars. Top of head in juveniles with a horse-shoe shaped mark.

*Distribution* : From the Persian Gulf to the Idzu Sea of Japan, southward to Sri Lanka and the islands of Indonesia. Contrary to Smith's (1943) remarks, this species is the second most abundant sea snake found in Madras waters.

#### **Hydrophis fasciatus fasciatus Schneider**

*Material* : One juvenile (540 mm) taken from the Ennore Estuary.

*Description* : Head small. Body long and slender towards the front, larger and much compressed at the back. Body scales keeled. V 428, distinct throughout. Greyish above and white beneath. Back with dark cross-bars widest at the top and ending in points along the sides.

*Distribution* : From the coasts of Thailand to the Straits of Malacca, New Guinea and northern coast of Australia.

#### **Hydrophis spiralis Shaw (Plate I D)**

*Material* : Two juveniles (650-755 mm) and one adult (975 mm) from the fisherman's nets at the Triplicane Beach.

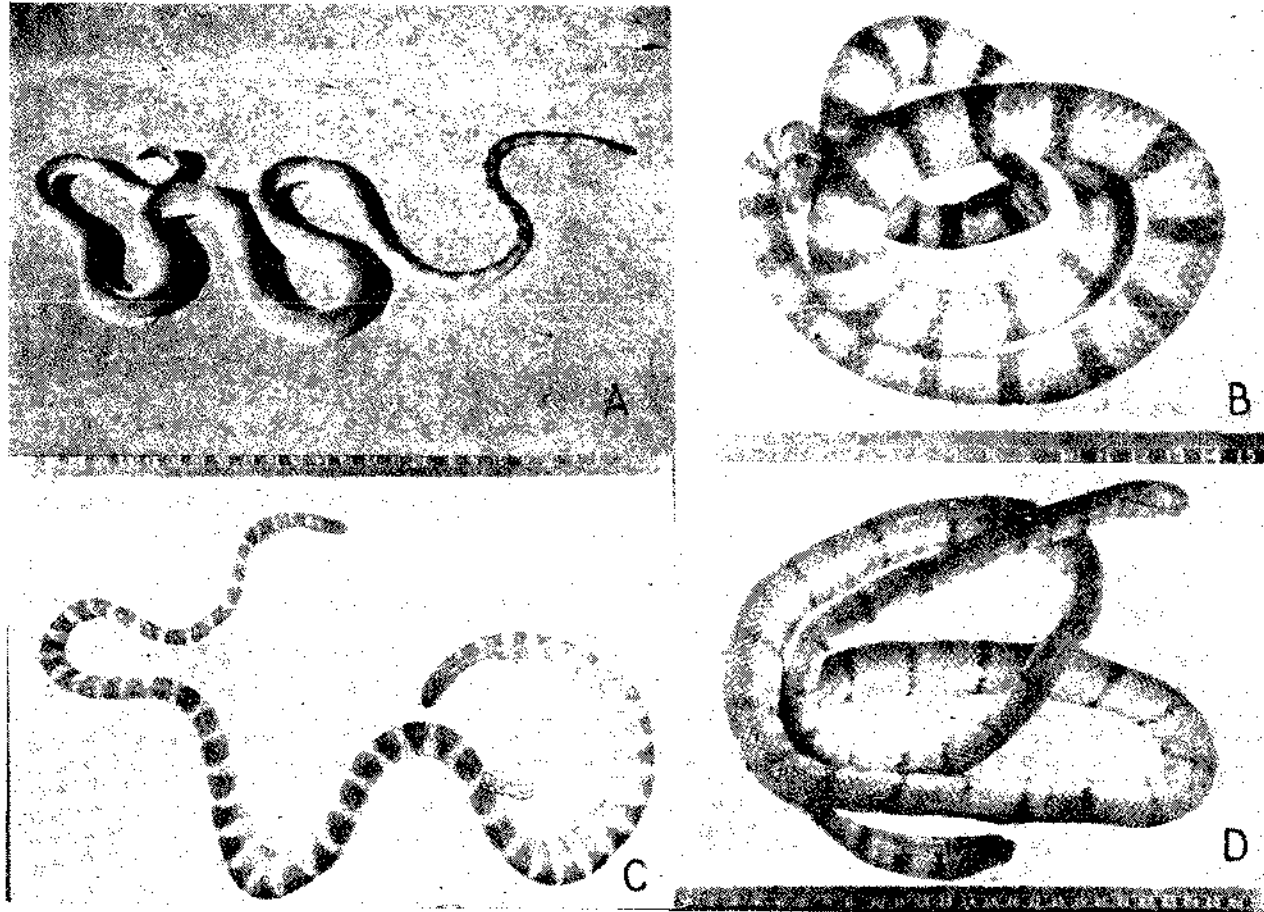


PLATE I. A. *Microcephalophi gracilis*, B. *Kerilia jerdoni*, C. *Hydrophis cyanocinctus* and D. *Hydrophis spiralis*.

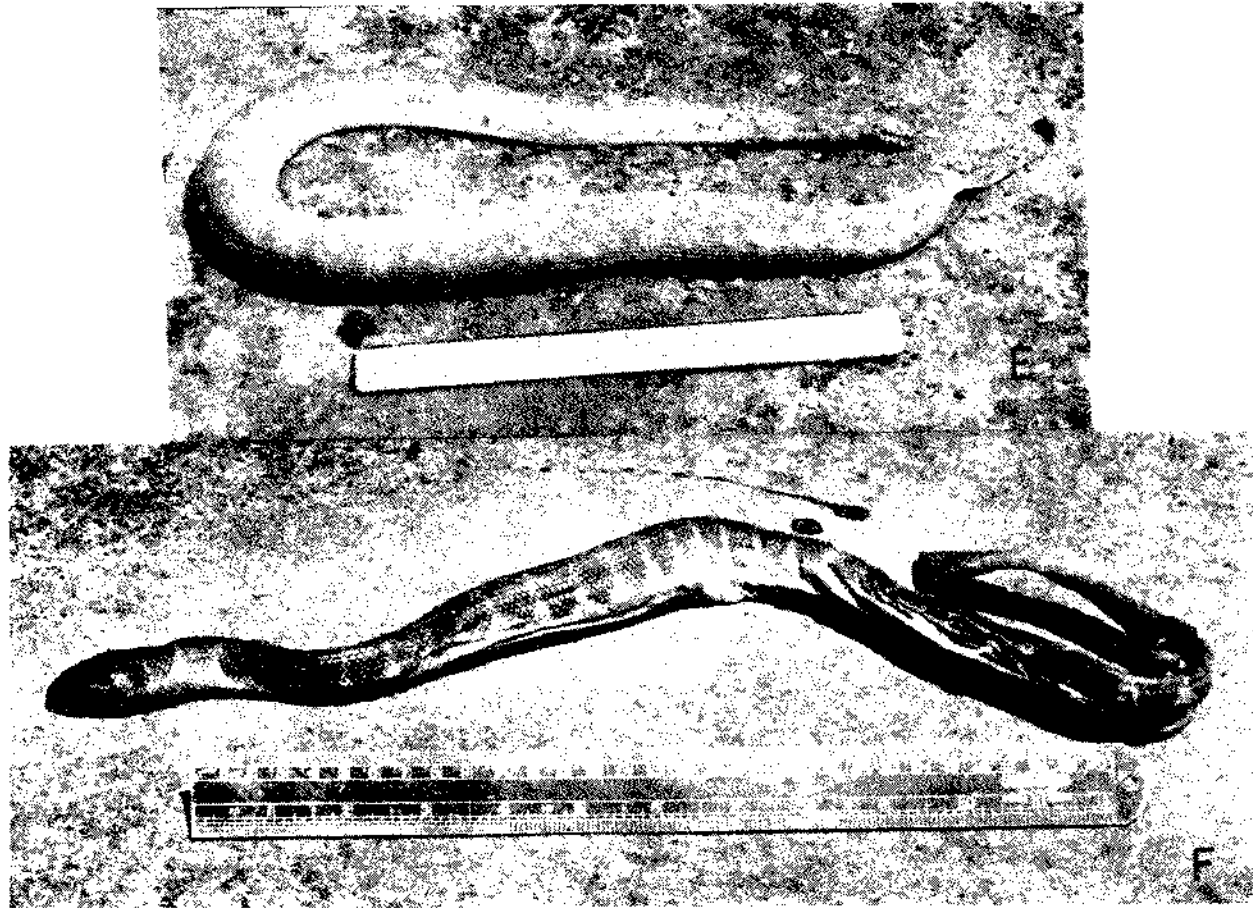


PLATE II. A. *Enhydra schistosa* and B. *Lapemis curtus*.

*Description* : Head moderate slightly distinct from neck. Body scales slightly overlapping each other, smooth or with a central keel or tubercle. V 338-347, twice as broad as the adjacent scales.

The general colouration is golden yellow to yellowish green; belly both in the adults and juveniles is yellowish. Head with yellow horse-shoe shaped mark in juveniles. Body with more or less complete black rings around the body which are much narrower than the interspaces. Largest of all sea snakes attaining a maximum length of 2750 mm.

*Distribution* : From the Persian Gulf, around the coasts of India to Celebes and Philippines.

#### ***Kerilia jerdoni* Gray (Plate I B)**

*Material* : Four juveniles (325-418 mm) and 2 adults (750-815 mm) collected off Madras Harbour.

*Description* : Head short, very narrow and slopes downward at the snout. Body scales broader, overlapping and strongly keeled. V 225-229.

Olive brownish above and whitish below. Back crossed by a series of (30-36) large, black spots broadest at the top, narrow along the sides which encircle the body completely in the young.

*Distribution* : From the east coast of India and along the coast of Sri Lanka to the Straits of Malacca, east as far as south Viet Nam, and south to Borneo.

#### ***Microcephalophis gracilis* Shaw (Plate I A)**

*Material* : Three juveniles (275-283 mm) and two adults (793-875 mm) from bottom trawls operated between Tondiarpet and Ennore.

*Description* : Head very small. Neck and forward part of the body slender, while the hind part is much compressed. V 256-276, distinctly larger than adjoining scales anteriorly.

Young black and adults grey above, with pale yellowish spots on side of neck and light cross bars in the rear. Young with about 35-40 paired spots.

*Distribution* : From the Persian Gulf to southern China, through the Malay Archipelago to northern Australia and New Guinea.

#### ***Lapemis curtus* Shaw (Plate II B)**

*Material* : Eight specimens (430-675 mm) collected off Madras Harbour.

*Description* : Deep bodied. Head short and slightly distinct from neck. Rostral wider and strongly trifold. Parietals broken up. V 154-195, very distinct anteriorly.

Colouration is pale olive, shading to pale yellow on sides. Back with 47 cross bands of ten alternating to form a zigzag band.

*Distribution* : From the Persian Gulf to southern Japan, south to Sri Lanka and northern Australia.

**Pelamis platurus (Linnaeus)**

*Material* : One specimen (530 mm) taken 12 miles off Marina Beach.

*Description* : Head long, narrow and distinct from neck. Body markedly compressed laterally. V 268, divided and not distinct.

Back blackish and belly yellowish as in the common form. Tail with black and white bars.

*Distribution* : The most widely distributed of all the sea snakes. Common in the Indo-Australian seas; extends to Siberia and south to Tasmania.

**Praescutate viperina (Schmidt)**

*Material* : One specimen (525 mm) taken off Marina Beach.

*Description* : Head short, rather wide. Body elongate. V. 257, large anteriorly and narrower posteriorly. Grey above and lighter beneath as in the common colour form.

*Distribution* : From the Persian Gulf to south eastern China and the Malay Archipelago

## ABUNDANCE

The most abundant and commonest species in Madras Coast is *Enhydrina schistosa*. The second most abundant species is *Lapemis curtus* followed by *Hydrophis cyanocinctus*, *Kerilla jerdoni* and *Microcephalophis gracilis*. The trawl net catches from deeper waters yielded a good number of *Kerilla* and *Microcephalophis*. The species *Hydrophis ornatus* and *H. obscurus* seem to be rare.

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