SCIAEN

1983

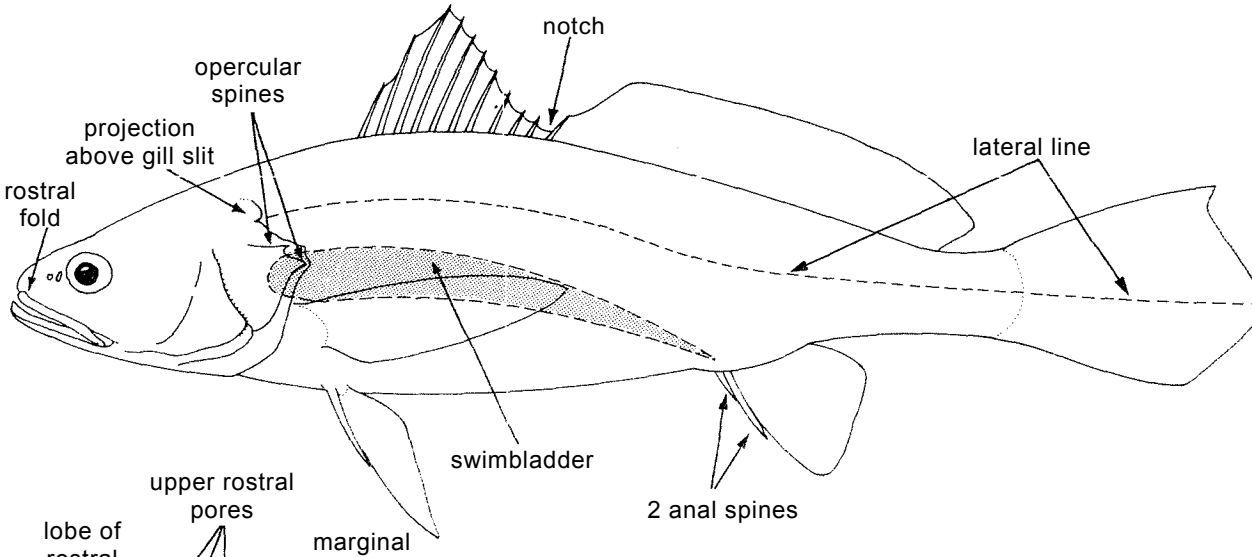
SPECIES IDENTIFICATION SHEETS

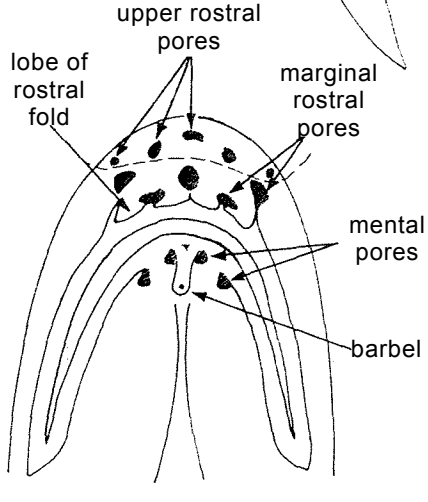
FISHING AREA 51
(W. Indian Ocean)

SCIAENIDAE

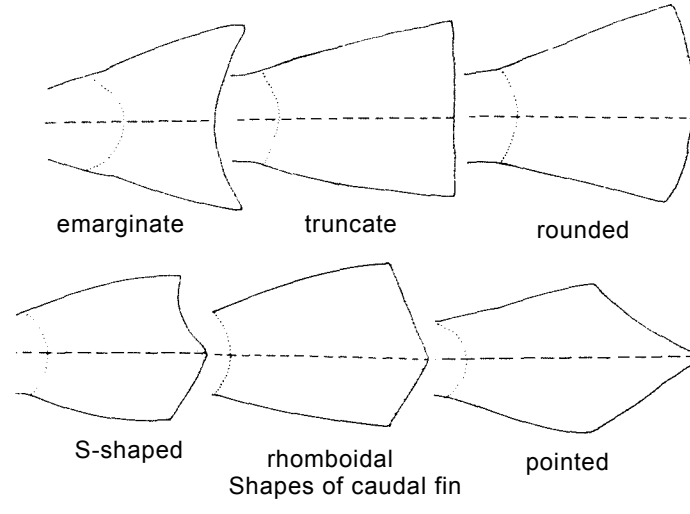
Croakers, drums, meagres, weakfishes*

Fishes with fairly elongate bodies, moderatey compressed; whole head and body scaled except at extreme tip of snout. Head with enlarged cavernous canals; snout rounded or blunty pointed; sensory pores often conspicuous on tip of snout (rostral pores), on lower edge of snout (marginal pores) and on chin (mental pores); usually 3 to 5 rostral pores on tip of snout, 5 nearer anterior margin of mouth and 3 pairs on lower jaw; bottom feeders (Johnius carutta, Johnius elongatus) have well developed rostral and mental pores whereas in midwater





Underside of head (Umbrina sp.)



Shapes of caudal fin

*Description applies to Western Indian Ocean representatives only

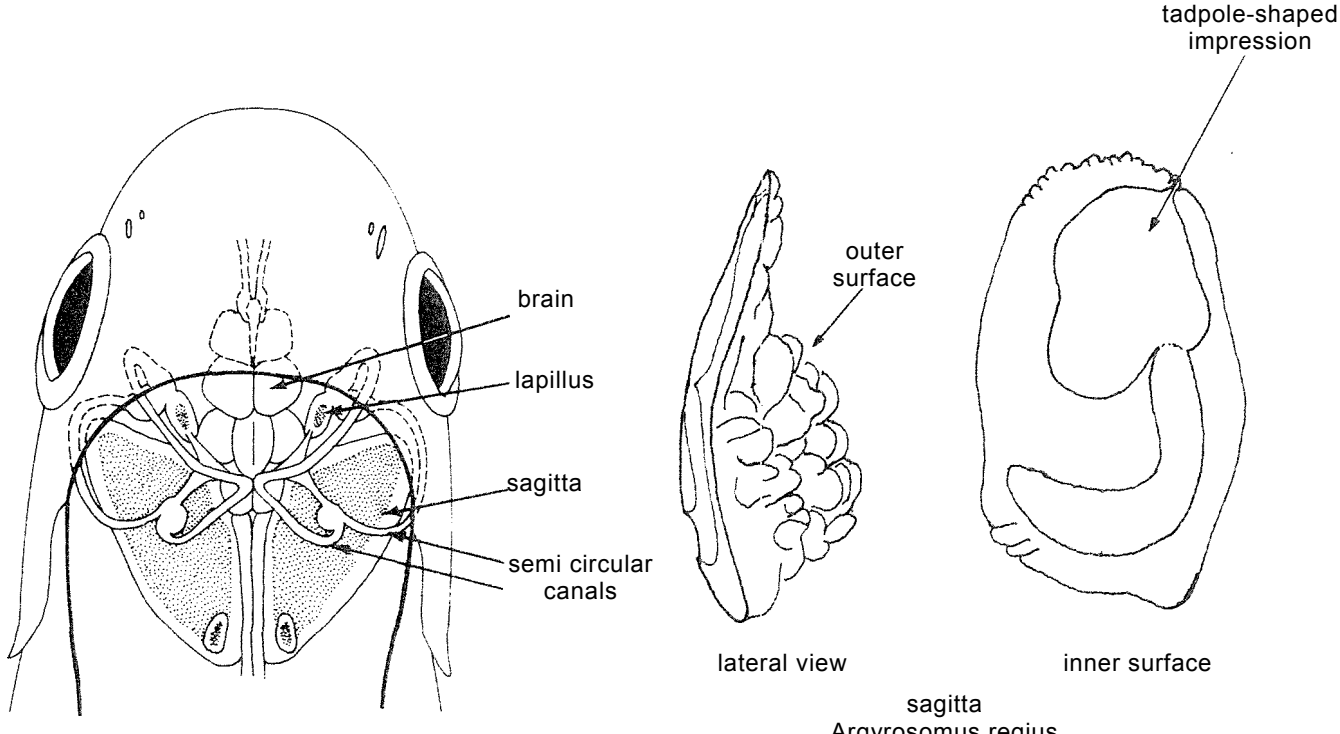
feeders (Otolithes, Argyrosomus) the pores are indistinct, one or 2 mental barbells sometimes present on chin, solid (Dendrophysa russelli, Johnius dussumieri), or with a pore at tip (Umbrina); mouth terminal (Otholithes, Pennahia), subterminai (Protonibea); inferior (Johnius, Umbrina) or lower jaw projecting (Atractoscion); teeth generally small, usually differentiated into larger and smaller in upper jaw; well developed canines may be present in both jaws (Otolithes ruber); teeth in, lower jaw may be in a villiform band (Johnius), with a slightly enlarged inner row (Johnieops sina, Johnieops aneus). or with well developed enlarged teeth (Pennahia, Protonibea, Nibea albida); roof of mouth (vomer and palatine bones) toothless; bony edge of opercle forked at its upper angle, appearing as a pair of soft spines connected by a thin bone; a rounded. scaled bony arojection present above upper end of gill slit; gillrakers on lower limb of first arch dentate, their number varying from 5 to 16. Dorsal fin usually long, continuous with a deep notch between the anterior (spinous) and posterior (soft) portions; anterior portion with 8 to 10 spines usually 10), and posterior portion with 1 spine and 21 to 34 soft rays; pectoral fins with 16 to 18 rays, pelvic fins with 1 spine and 5 soft rays, anal fin with 2 spines of which the second may be greatly enlarged and strong (Nibea); caudal fin emarginate to pointed, never deeply forked, usually pointed in juveniles. Scales cycloid (smooth to touch) on head and ctenoid (rough to touch) on body (in Johnius dussumieri scales cycloid on head and body). Lateral line scales extending to hind margin of caudal fin.

Colours highly variable from silvery to dark brown or black., either uniform or some species with spots and dark bands; juveniles of many species have bands on body.

Note:

Internal characters such as shape and size of otoliths and swimbladder are often particularly helpful in the identification of genera, and sometimes of species in this family. Since the examination of these characters is rather simple, field workers are encouraged to make use of them in case of doubt.

(i) Otoliths (earstones) are located in the ear capsules on each side of the head (see figures on page 2); one pair (sagitta) is always large, while the other two pairs are rudimentary. The sagitta is characterized in this family by the presence of a tadpole-shaped impression (or sulcus) on its inner surface. To examine the otoliths it is necessary to remove them from the ear capsules by one of the following methods: (1) remove floor of skull at upper end of first gill arch from one side; the sagitta may be vaguely visible through the thin wall of the bony ear capsule; (2) cut head from the top above preopercular margin (hold knife at angle of 45°) remove roof of skull and extract otoliths from ear capsules.



sagitta
Argyrosomus regius

(ii) The swimbladder is located between; the viscera and the vertebral column, separated from the head by a transverse membrane or septum. It is well developed in all Western Indian Ocean sciaenids. The organ is usually oval, or carrot-shaped, with or without appendages or diverticula. Drumming muscles (part of the sound-producing mechanism) are usually developed in males. The body of the swimbladder is readily exposed after gutting the fish; in some genera (i.e., Argyrosomous, Atractoscion, Kathala, Panna) it becomes necessary to also remove organs further ahead, in order to examine the anterior appendages.

Small to moderately large fishes (20 cm to more than 1 m in total length), primarily coastal but some found in estuaries or in deeper offshore waters. A large majority of them are found over muddy bottoms. Some occur in large shoals and are the object of sizeable fisheries. In India, about 6% of the total marine fish landings correspond to sciaenids; they are caught particularly during the winter months (November to February). Separate statistics are not reported for species of this family within the area. The reported catch of unclassified sciaenids totalled 112 116 metric tons in 1981 of which 95 171 were taken by India. The width of the continental shelf seems to have some relation to the abundance of sciaenid populations. Most of them feed on small crustaceans, fishes and benthic organisms. The smaller sciaenids attain maturity in their second year and breed in shallow coastal areas during March-April; they are taken in bottom trawls while larger ones are caught with bottom set gillnets. Some species (Argyrosomus thorpei, A. hololepidotus) are also good sport fishes. Swimbladders of the larger species are dried and exported from India to Far Eastern countries for the manufacture of isinglass used in the wine industry as a clarifying agent.

SIMILAR FAMILIES OCCURRING IN THE AREA:

All other perchlike fishes: lateral line not extending to hind margin of caudal fin; anal fin with 3 spines (2 spines in Western Indian Ocean Sciaenidae).

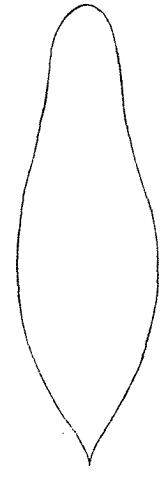
KEY TO GENERA OCCURRING IN THE AREA:

1a. Swimbladder* without appendages (Fig.1); a barbel on chin with a pore at its tip (Fig.2) ..... Umbrina

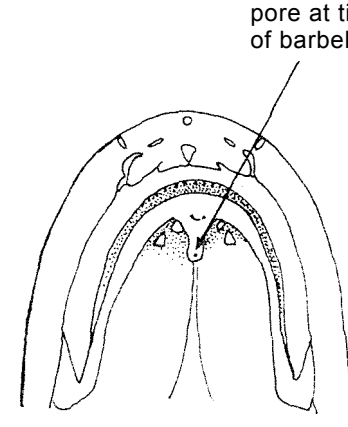
1b. Swimbladder with appendages; barbel on chin, when present, without a pore at its tip

2a. Swimbladder with only 1 or 2 pairs of simple or branched appendages (Figs.3,4)

3a. Swimbladder appendages wholely directed forward from anterior end of bladder (Figs 3,4)



swimbladder
Umbrina Fig.1



underside of head
Umbrina Fig.2

*Cannot be seen without dissecting the fish

4a. Swimbladder appendages not extending through transverse septum into head (Fig. 3); gillrakers short, 6 to 9 on lower limb of first arch; teeth short, firm, subequal; caudal fin slightly emarginate to lunate ..... Atractoscion

4b. Swimbladder appendages extending in front of transverse septum into head (Fig.4); gillrakers 19 to 23 on lower limb of first arch; teeth differentiated into large and small; caudal fin bluntly rhomboid ..... Kathala

3b. Swimbladder appendages with at least the main part lying parallel to the bladder (Figs 5,6)

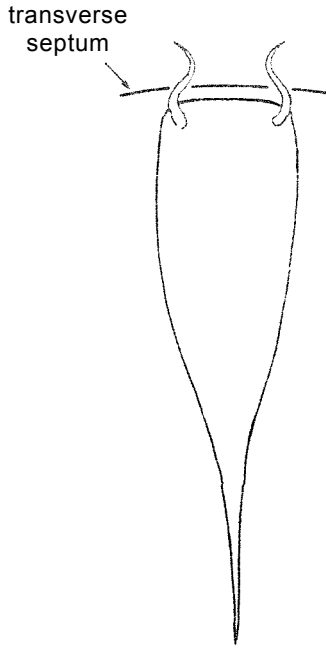
5a. Swimbladder appendages attached to posterior end of bladder (Fig.5) .....Otolithoides

5b. Swimbladder appendages attached to anterior end of bladder and immediately dividing into branches, each side dividing into one cephalic and one abdominal branch, the former branching in front of the transverse septum (Fig.6) ..... Panna

2b. Swimbladder with more than 2 pairs of arborescent appendages

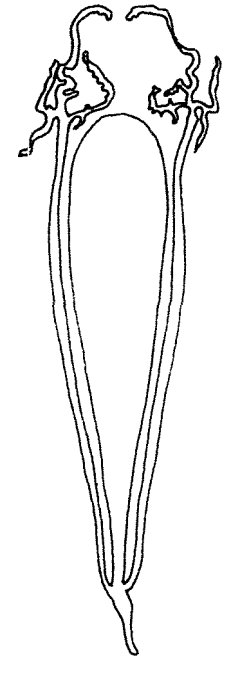
Swimbladder

Atractoscion Fig.3



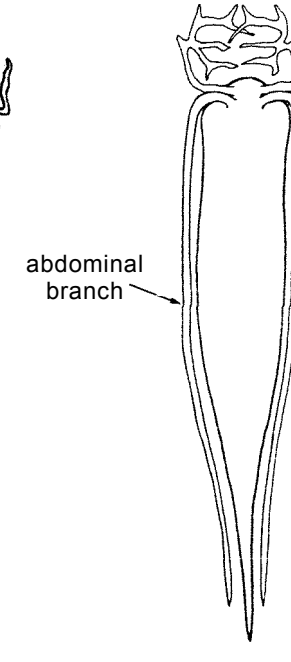
Swimbladder

Kathala Fig.4



Swimbladder

Otolithoides Fig. 5



swimbladder

Panna Fig.6

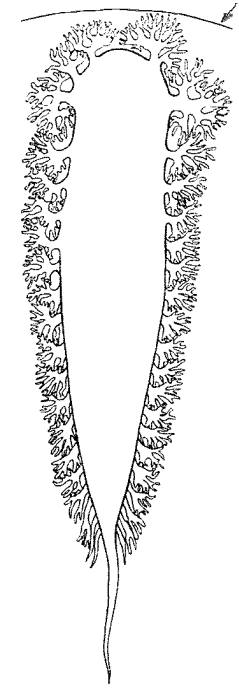
6a. Swimbladder carrot-shaped (Fig.20)

7a. Anterior pair of arborescent appendages of swimbladder branching on posterior surface of transverse septum and not entering head (Fig.7)

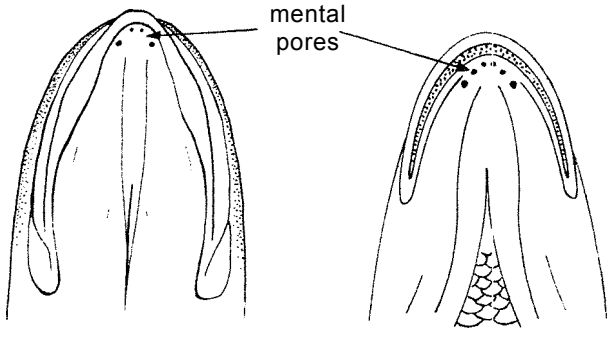
8a. Outer upper teeth enlarged and spaced, but no outstanding canines

9a. Pores on chin of the "false five" pattern, those of first pair close together behind tip of jaw and united by a groove (Fig.8); lower fins dark ..... Protonibea

9b. First pair of pores small, on front of chin, one on each side of tip of jaw, not united by a groove, one (Fig.9a) or two (Fig.9b) pairs behind them; 2nd anal fin spine weak

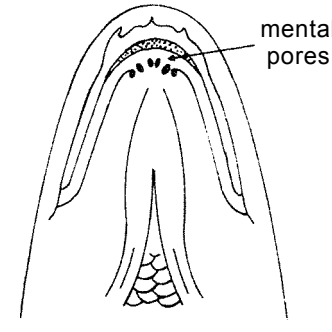


swimbladder
Protonibea Fig.7



a) Pennahia b) Atrobucca

underside of head Fig.9



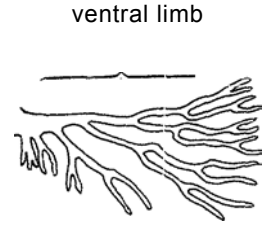
underside of head
Protonibea fig.8

10a. Swimbladder appendages without a well developed dorsal limb, the posterior ones parallel to wall of bladder (Fig.10a); "tail" of tadpole-shaped impression of otolith only slightly curved (Fig.11) ..... Pennahia

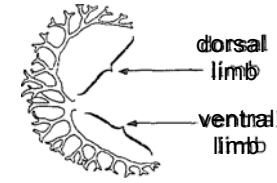
10b. Swimbladder appendages each with a short or long branched dorsal limb as well as a ventral; posterior appendages simple, very short, at right angles to wall of bladder (Fig.10b); tail of tadpole-shaped impression either slightly or strongly curved

11a. "Tail" of tadpole-shaped impression of otolith only slightly curved (Fig.12a) ... Atrobucca

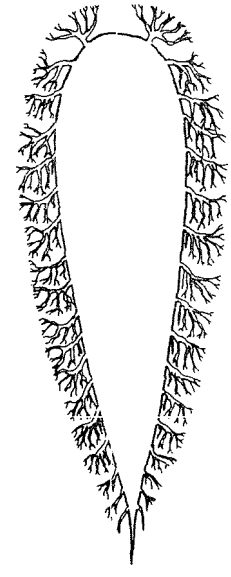
11b. "Tail" of tadpole-shaped impression of otolith strongly curved, J-shaped (Fig.12b) ..... Argyrosomus



enlarged appendage



enlarged appendage



swimbladder

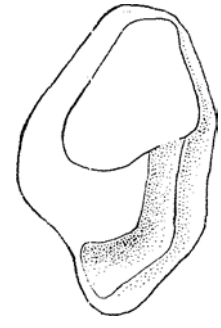
a) Pennahla

swimbladder

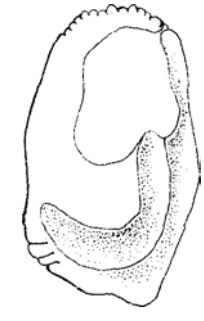
b) Argyrosomus Fig.10

sagitta (inner surface)

Pennahia Fig.11



a) Atrobucca



b) Argyrosomus

sagitta (inner surface) Fig.12

8b. One or 2 pairs of outstanding canine teeth in upper or both jaws (Figs 13,14)

12a. Canines in upper jaw only; mouth inferior (Fig.13) ..... Chrysochir

12b. Canines in both jaws; mouth terminal or lower jaw projecting (Fig.14)..... Otolithes

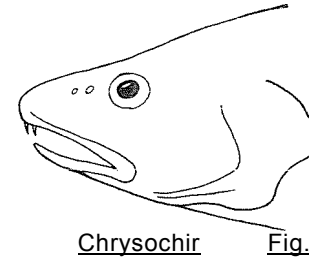
7b. Anterior pair of swimbladder appendages extending into head and branching between skull and upper gill arches (Fig.15)

13a. Lower jaw with a single mental barbel (Fig.16); lower jaw teeth uniform ..... Dendrophysa

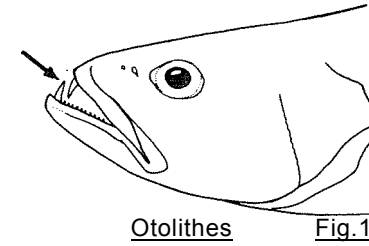
13b. Lower jaw either with 2 or without mental barbels

14a. Lower jaw teeth differenttiated in size (Fig.17a); mental barbels 2 (Fig.18) or absent ..... Nibea

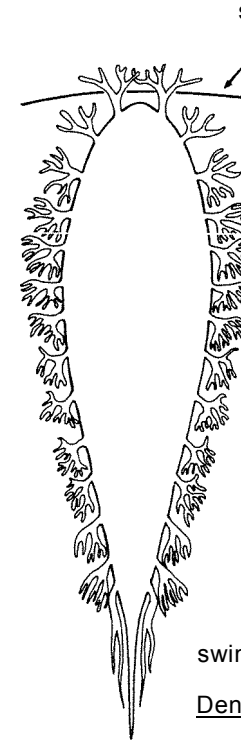
14b. Lower jaw teeth uniform in size (Fig.17b); no mental barbel ..... Paranibea



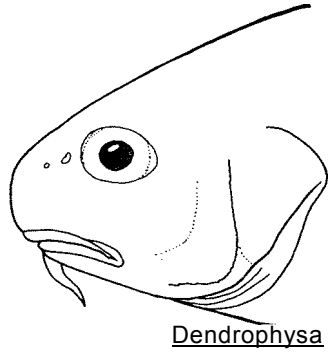
Chrysochir Fig.13



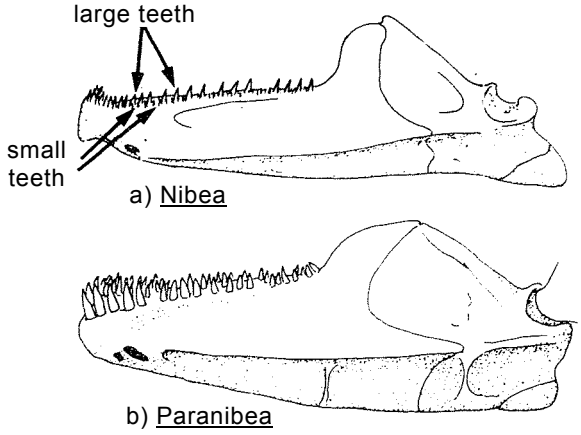
Otolithes Fig.14



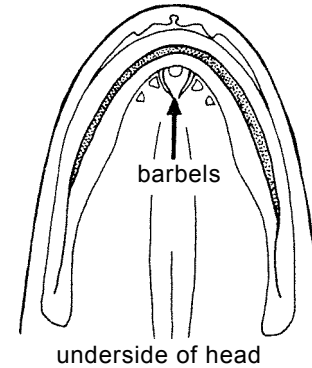
Dendrophysa Fig.15



Dendrophysa Fig.16



lower jaw Fig.17



Nibea Fig.18

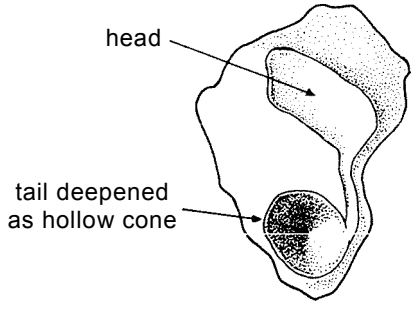
6b. Swimbladder hammer-shaped (Fig.19), "head" of tadpole-shaped impression of otolith truncated and obliquely bent, "tail" expanded to form hollow cone (Fig.20)

15a. Teeth of lower jaw subequal; enlarged teeth of upper jaw not widely spaced; mouth inferior (Fig.21a) ..... Johnius

15b. Inner lateral teeth of lower jaw enlarged; outer teeth of upper jaw enlarged and widely spaced; mouth usually subterminal (Fig.21b) .....Johnieops

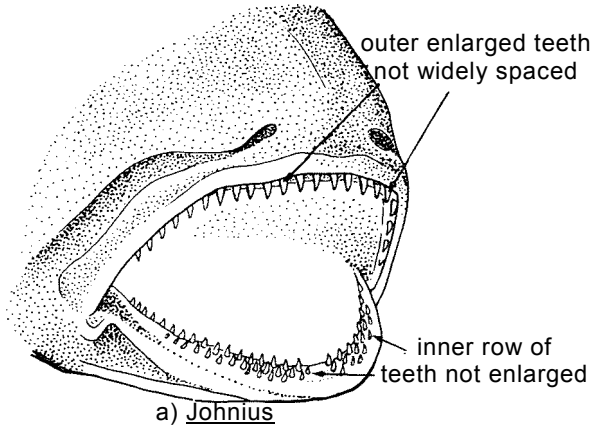
swim bladder

Johnius Fig.19

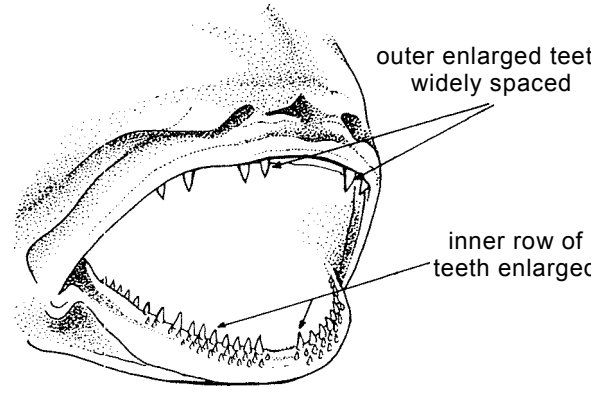


sagitta (inner surface)

Johnius Fig.20



a) Johnius



b) Johnieops Fig.21

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

Argyrosomus amoyensis (Bleeker, 1863)	SCIAEN Argyr 2
Argyrosomus heinii (Steindachner, 1907)	SCIAEN Argyr 6
Argyrosomus hololeadotus (Lacepède, 1802)	SCIAEN Argyr 3
Argyrosomus thorpei (Smith, M.M., 1977)	SCIAEN Argyr 7
Argyrosomus regius (Asso, 1801)	SCIAEN Argyr 1
Atractoscion aeguidens (Cuvier, 1830)	SCIAEN Atrac 1
*Atrobucca alcocki Talwar (in press)	
Atrobucca marleyi (Norman, 1922)	SCIAEN Atro 2
*Atrobucca nibe Jordan and Thompson, 1911	
*Atrobucca trewavasae Talwar and Sathiarajan	
Chrysochir aureus (Richardson, 1846)	SCIAEN Chrys 1
Dendrophysa russelli (Cuvier, 1830)	SCIAEN Dend 1
Johnieops aneus (Bloch, 1793)	SCIAEN Joh 4
Johnieops dussumieri (Cuvier, 1830)	SCIAEN Joh 1
Johnieops macrorhynus Mohan, 1976	SCIAEN Joh 5
Johnieops sina (Cuvier, 1830)	SCIAEN Joh 2
Johnieops vogleri (Bleeker, 1853)	SCIAEN Joh 3
Johnius belangerii (Cuvier, 1830)	SCIAEN John 1
Johnius carouna (Cuvier, 1830)	SCIAEN John 6
Johnius carutta Bloch, 1793	SCIAEN John 2
Johnius dussumieri (Valenciennes, 1833)	SCIAEN John 4
Johnius elongatus Mohan, 1976	SCIAEN John 7
Johnius glaucus (Day, 1876)	SCIAEN John 8
Johnius macropterus (Bleeker, 1853)	SCIAEN John 9
Johnius mannarensis Mohan, 1969	
Kathala axillaris (Cuvier, 1830)	SCIAEN Kath 1
Nibea albida (Cuvier, 1830)	SCIAEN Nib 7
Nibea maculata (Schneider, 1801)	SCIAEN Nib 3
Nibea soldado (Lacepède, 1802)	SCIAEN Nib 6
Otolithes cuvieri Trewavas, 1974	SCIAEN Otol 1
Otolithes ruber (Schneider, 1801)	SCIAEN Otol 2
Otolithoides biauritus (Cantor, 1850)	SCIAEN Otold 1
* Otolithoides pama (Hamilton, 1822)	
Panna microdon (Bleeker, 1840)	SCIAEN Pan 1
Paranibea semiluctuosa (Cuvier, 1830)	SCIAEN Paranib 1 (= SCIAEN Nib 5 Areas 57/71)
Pennahia macrophthalmus (Bleeker, 1850)	SCIAEN Penn 3
Protonibea diacanthus (Lacepède, 1802)	SCIAEN Proto 1
Umbrina ronchus Valenciennes, 1843	SCIAEN Umbr 5
Umbrina canariensis Valenciennes, 1843	SCIAEN Umbr 6

Prepared by R.S. Lal Mohan, Regional Centre of Central Marine Fisheries Research Institute, Mandapam Camp, Tamil Nadu, India

Draft material revised by E. Trewavas and P.J.P. Whitehead, British Museum (Natural History), London, UK

Most main species drawings provided by author. Many sketches taken from Trewavas, 1977

* Species not actually recorded from the Western Indian Ocean (or records doubtful) but possibly extending to marginal parts of Fishing Area 51

** Treated here as a possible synonym of J. macropterus, following Trewavas

click for next page