MUGIL

1983

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

MUGILIDAE

Mullets

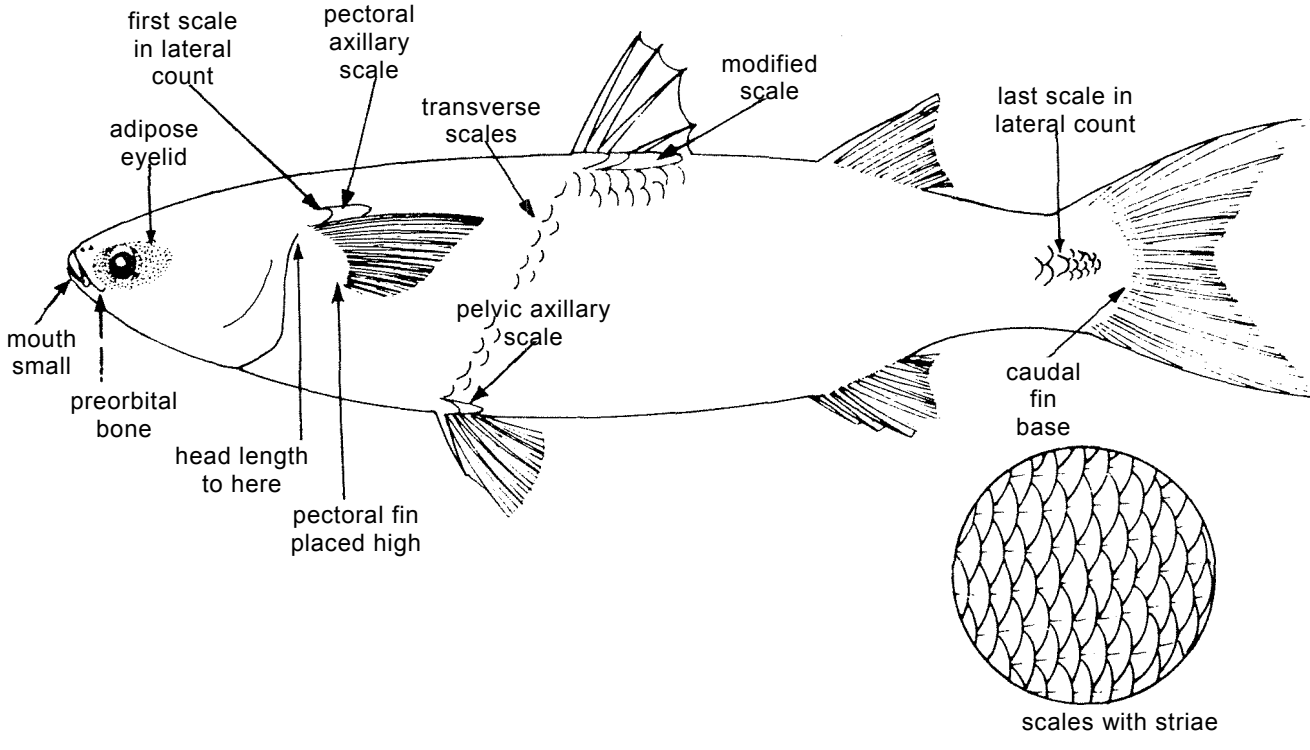
Elongate fishes, usually with a broad, flattened head (but head rounded in Agonostomus species) blunt snout and cylindrical or a little compressed body. Eyes often partly covered by fatty tissue (adipose eyelid); mouth rather small terminal inferior; premaxilla protrusible; teeth small, feeble, hidden or absent. Two short dorsal fins, the first with 4 slender spines; pectoral fins set rather high on body; pelvic fin base about equidistant between pectoral fin base and origin of first dorsal fin; anal fin with 2 or 3 spines; caudal fin moderately forked, emarginate or truncate. Lateral line absent. Scales large or moderate-sized; modified scales may be present below first dorsal fin and above pectoral and pelvic fins (axillary scales).

Colour: in life, blue/green, green or olive on back, silvery on sides and belly, often with 3 to 9 longitudinal streaks on back, sides and belly; fins hyaline and dusky.

Medium-sized to large fishes inhabiting coastal marine waters, estuaries and fresh waters. Most species are typically coastal-estuariee and adaptable to great changes in salinity. Most species spawn at sea. Liza abu has evolved into freshwater habitat. Mullets are usually found schooling in shallow water; they feed largely on plant material obtained by grubbing through bottom detritus.

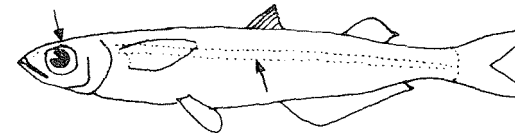
They have been important food fishes since ancient times and fished commercially wherever they occur abundantly, mostly with castnets, setnets, iiftnets and beach seines.

Owing to their rapid growth and hardiness they are often used in fishpond culture. The total catch of mullets reported from Fish Area 51 in 1980 totalled about 8,000 t (4,700 of which were caught by Pakistan and 2,600 by India).



SIMILAR FAMILIES OCCURRING IN THE AREA:

Atherinidae: have a silvery stripe along sides. large eyes and soft anal fin rays usually more than 10 (usually less than 10 in Mugilidae).



Atherinidae

KEY TO GENERA OCCURRING IN THE AREA:

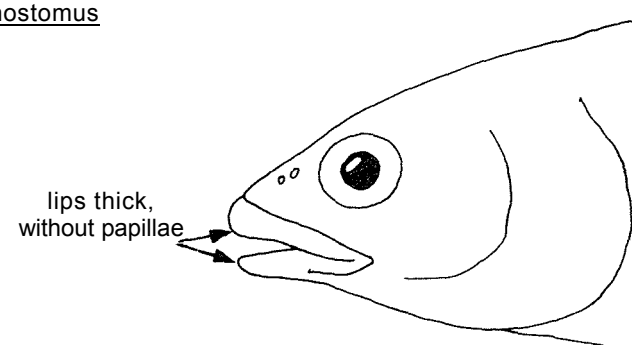
1a. Two anal fin spines in adults and young; lips thick, without papillae (Fig. 1) ..... Agonostomus

1b. Three anal fin spines in adults (but 2 in young less than 6 cm standard length); lips thin or ornamented with crenulations or papillae

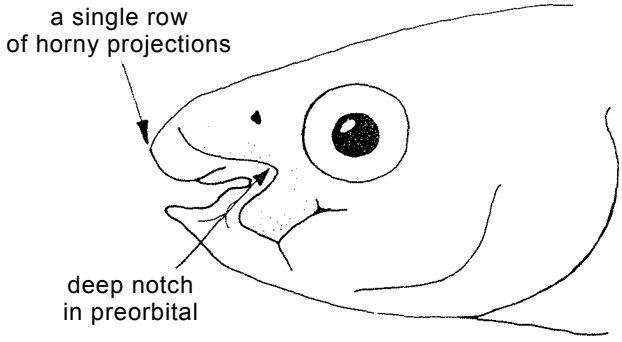
2a. Lower third of upper lip bearing enlarged crenulations or papillae (Figs 2.3)

3a. Preorbital bone deeply notched; lips with a single row of horny projections (Fig.2) ..... Oedalechilus

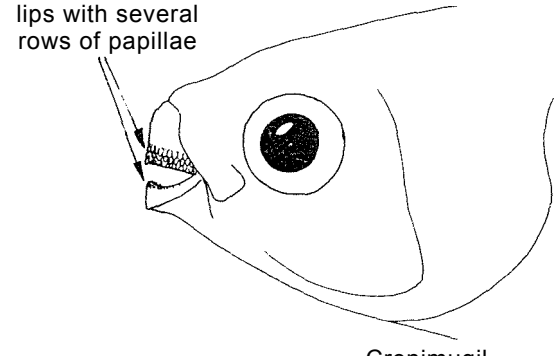
3b. Preorbital bone only slightly or not notched; lips with several rows of papillae (Fig.3)..... Crenimugil



Agonostomus Fig.1



Oedalechilus Fig.2

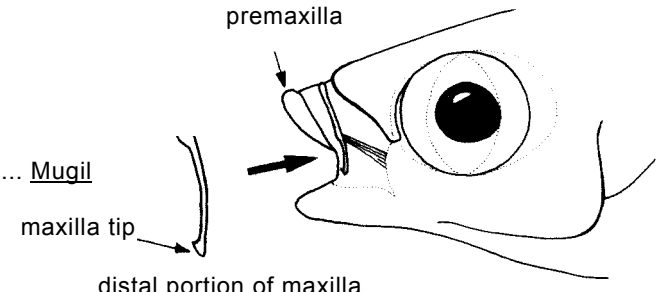


Crenimugil Fig.3

2b. Lower third of upper lip without crenulations or papillae

4a Hind tip of maxilla not curved below tip of premaxilla (Fig.4) ..... Mugil

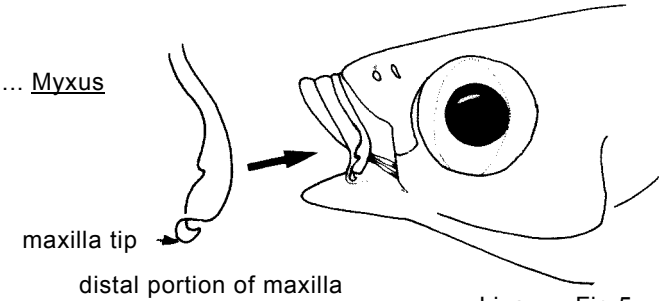
4b. Hind tip of maxilla curved below tip of premaxilla (Fig.5)



Mugil Fig.4

5a. Jaw end only slightly below line of gape (Fig.6a); teeth present on vomer and palatines (roof of mouth) ..... Myxus

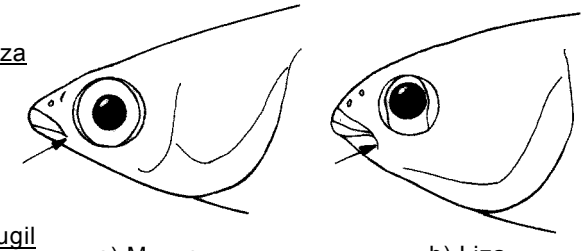
5b. Jaw end well below base of gape (Fig.6b); teeth absent on vomer and palatines



Liza Fig.5

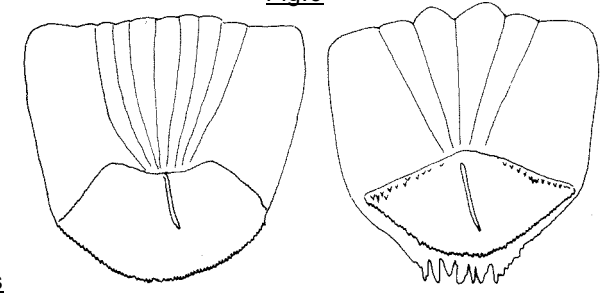
6a. Scales without a membraneous digitated hind margin (Fig.7a); pectoral axillary scale rudimentary or absent ..... Liza

6b. Scales with a membraous digitated hind margin (Fig.7b); pectoral axillary scale very long ..... Valamugil



a) Myxus b) Liza

Fig.6



a) Liza b) Valamugil

Fig.7

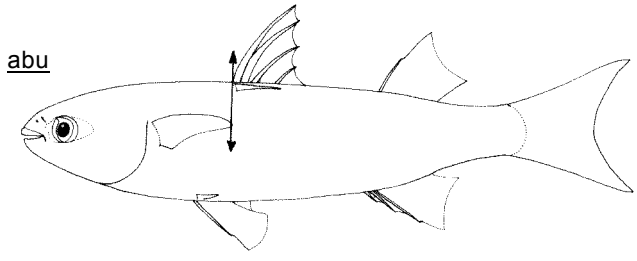
KEY TO SPECIES OF Liza:

1a. Teeth in upper lip tricuspid..... L. tricuspidens

1b. Teeth in upper lip unicuspid

2a. Pectoral fin reaching vertical through first dorsal fin origin; scales in lateral series 44 to 50 (Fig.1) ..... L. abu

2b. Pectoral fin not reaching vertical through first dorsal fin origin; scales in lateral series fewer than 45



L. abu Fig.1

3a. Eight anal fin rays

4a. Tail slightly emarginate (Fig.2) ..... L. vaigiensis

4b. Tail forked (Fig.3) ..... L. luciae

3b. Nine anal fin rays

5a. Back keeled in front of first dorsal fin (Fig.4) ..... L. carinata

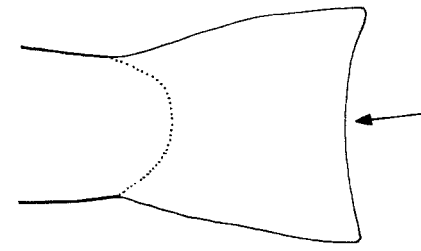
5b. Back not keeled in front of first dorsal fin

6a. Predorsal scales with 4 or more mucus canals (Fig.5) ..... L. dumerili

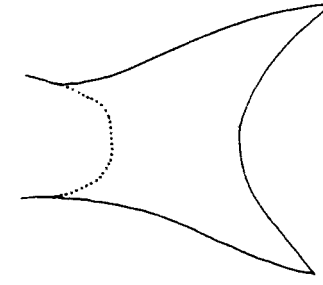
6b. Predorsal scales with 1 or 2 mucus canals

7a. Second dorsal fin origin on vertical through anal fin origin (Fig.6) ..... L. richardsoni

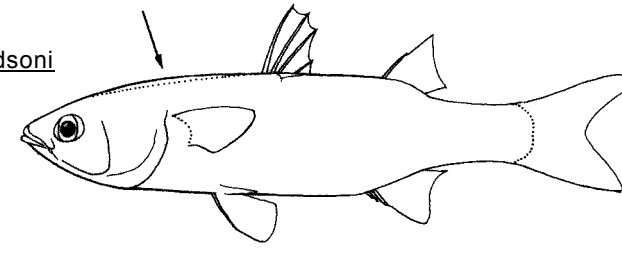
7b. Second dorsal fin origin on vertical posterior to at least anterior third of anal fin base



L. vaigiensis Fig. 2

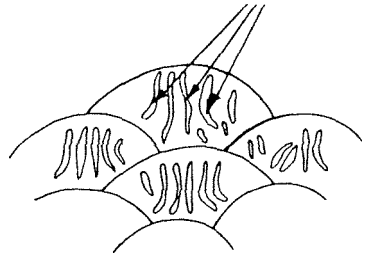


L. luciae Fig.3

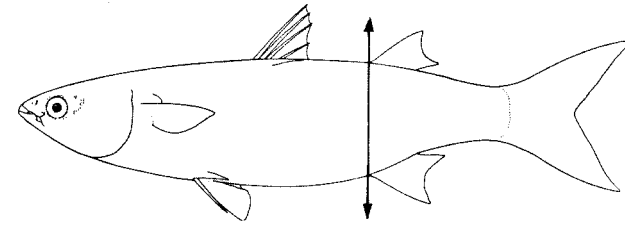


L. carinata Fig.4

4 mucus canals



scales on upper surface of head
L. dumerili Fig.5



L. richardsoni Fig.6

8a. Twelve transverse scales (Fig.7) ..... L. macrolepis

8b. Fewer than 12 transverse scales

9a. Second dorsal fin origin over posterior half of anal fin base (Fig.8) ..... L. tade

9b. Second dorsal fin origin over anterior half of anal fin base

10a. Preorbital not filling space between lip and eye; corner of mouth on vertical through anterior nostril (Fig.9) ..... L. subviridis

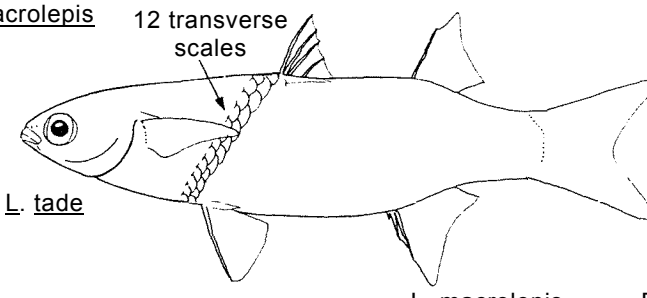
10b. Preorbital filling space between lip and eye; corner of mouth on vertical behind anterior nostril

11a. Jaw end on vertical through posterior nostril (Fig-10) ..... L. alata

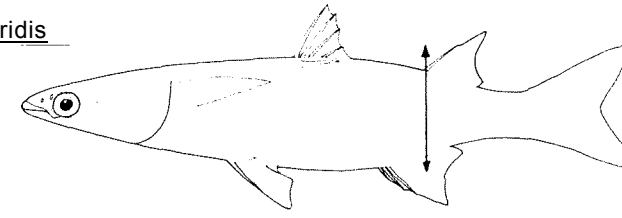
11b. Jaw end on vertical behind posterior nostril

12a. First dorsal fin origin nearer to snout tip than to caudal fin base; 11 transverse scales (Fig.11)..... L. arsia

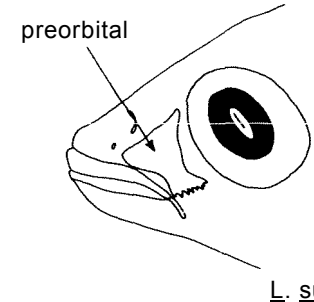
12b. First dorsal fin origin nearer to caudal fin base than to snout tip; 9 or 10 transverse scales (Fig. 12) ..... L. melinoptera



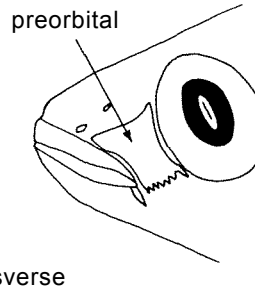
L. macrolepis Fig.7



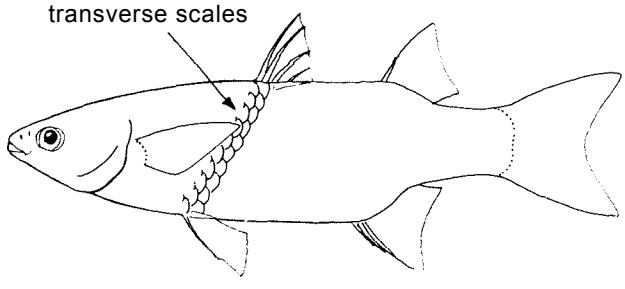
L. tade Fig.8



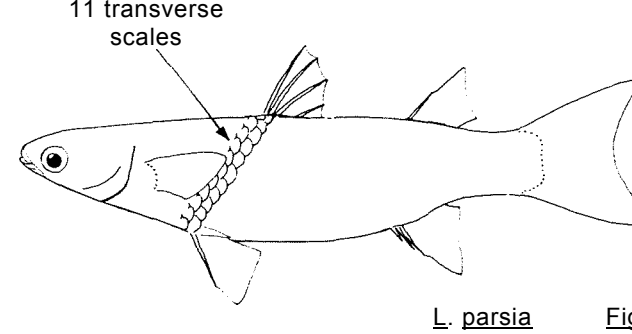
L. subviridis Fig.9



L. alata Fig.10



L. melinoptera Fig.12



L. parsia Fig.11

KEY TO SPECIES OF Valarnugil:

1a. Second dorsal fin origin on vertical through anal fin origin (Figs 1 and 2); hind end of upper jaw reaching vertical between posterior nostril and the anterior margin of eye

2a. Scales in lateral series 38 to 42; second dorsal fin origin opposite 26 to 28th scale in lateral series (Fig.1); distal end of pyloric caeca entire..... V. seheli

2b. Scales in lateral series 32 to 36; origin of second dorsal fin being opposite 21 to 23rd scale in lateral series (Fig.2); distal end of pyloric caeca branched..... V. buchanani

1b. Second dorsal fin origin on vertical behind anterior fourth of anal fin base (Figs 3,4 and 5); hind end of upper jaw on vertical through anterior margin of eye

3a. Pectoral fin not reaching vertical through first dorsal fin origin (Fig.3) ... V. robustus

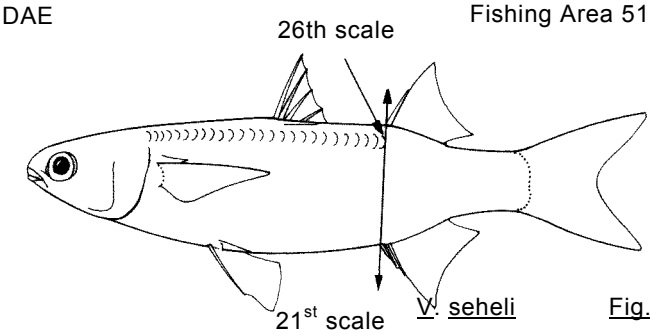
3b. Pectoral fin reaching at least vertical through first dorsal fin origin (Figs 4 and 5)

4a. First dorsal fin origin nearer to caudal fin base than to snout tip, or mid way (Fig.4)..... V. engeli

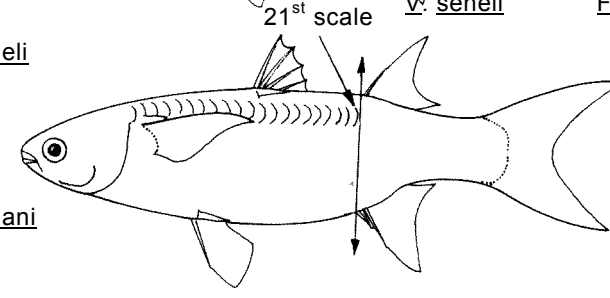
4b. First dorsal fin origin nearer to snout tip than to caudal fin base (Fig.5)

5a. Scales in lateral series 30 to 35; second dorsal and anal fins moderately scaled ..... V. cunnesius

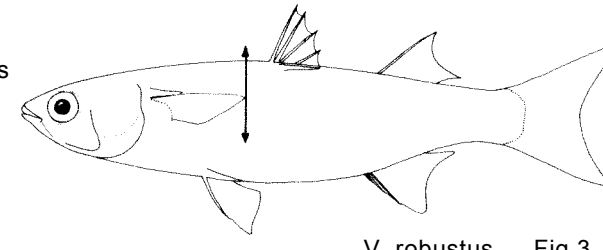
5b. Scales in lateral series 37 to 40; second dorsal and anal fins densely scaled ..... V. speigleri



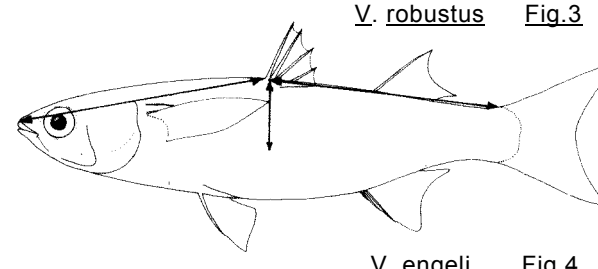
V. seheli Fig.1



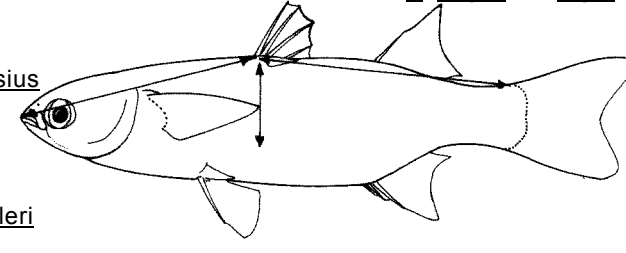
V. buchanani Fig.2



V. robustus Fig.3



V. engeli Fig.4



V. cunnesius Fig.5

LIST OF SPECIES OCCURRING IN THE AREA:

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

Agonostomus catalai Pellegrin, 1932	MUGIL Agon 1	
Agonostomus telfairii Bennett, 1832	MUGIL Agon 2	
Crenimugil crenilabis (Forsskål, 1775)	MUGIL Creni 1	
Liza abu (Heckel, 1846)	MUGIL Liza 7	
Liza alata (Steindachner, 1892)	MUGIL Liza 8	
Liza carinata (Valenciennes, 1836)	MUGIL Liza 9	
Liza dumerili (Steindachner, 1870)	MUGIL Liza 2	
Liza luciae Penrith & Penrith, 1967	MUGIL Liza 10	
Liza macrolepis (Smith, 1849)	MUGIL Liza 11	
Liza melinoptera (Valenciennes, 1836)	MUGIL Liza 12	
Liza parsia Hamilton-Buchanan,	MUGIL Liza 13	
Liza richardsoni (Smith, 1849)	MUGIL Liza 6	
Liza subviridis (Valenciennes, 1836)	MUGIL Liza 14	(= MUGIL Liza 2, Fishing Areas 57/71)
Liza tade (Forsskål, 1775)	MUGIL Liza 15	(= MUGIL Liza 3, Fishing Areas 57/71)
Liza tricuspidens (Smith, 1935)	MUGIL Liza 16	
Liza vaigiensis (Quoy & Gaimard, 1824)	MUGIL Liza 17	(= MUGIL Liza 4, Fishing Areas 57/71)
Mugil cephalus Linnaeus, 1758	MUGIL Mugil 1	
Myxus cpensis (Valenciennes, 1836)	MUGIL Myx 1	
Oedalechilus labiosus (Valenciennes, 1836)	MUGIL Oedal 1	
Valamugil buchanani (Bleeker, 1853)	MUGIL Vala 4	
Valamugil cunnesius (Valenciennes, 1836)	MUGIL Vala 1	
Valamugil engeli (Bleeker, 1858)	MUGIL Vala 5	
Valamugil robustus (Günther, 1861)	MUGIL Vala 6	
Valamugil seheli (Forsskål, 1775)	MUGIL Vala 2	
Valamugil speigleri (Bleeker, 1858)	MUGIL Vala 3	

Prepared by J.M. Thomson, University of Queensland, St. Lucia, Brisbane, Australia and C. Luther, Vizhinjam Research Centre of CMFRI, Trivandrum, India

MUGIL Agon 1

1983

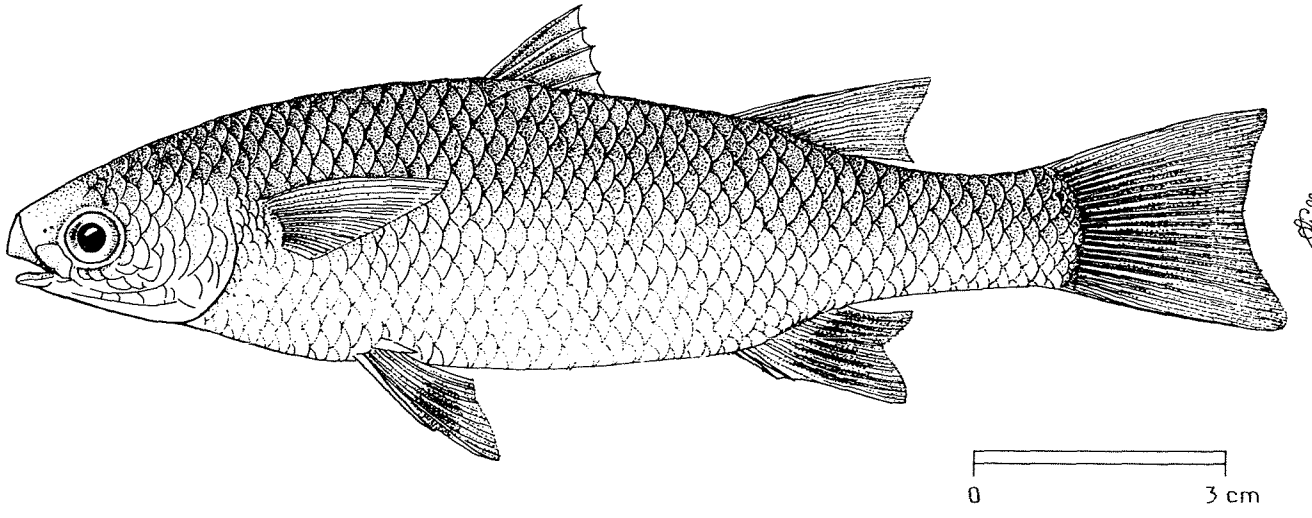
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: MUGILIDAE

FISHING AREA 51
(W. Indian Oman)

Agonostomus catalai Pellegrin, 1932

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Comoro mullet
Fr - Mulet comoro
Sp - Lisa comorana

NATIONAL:

DISTINCTIVE CHARACTERS:

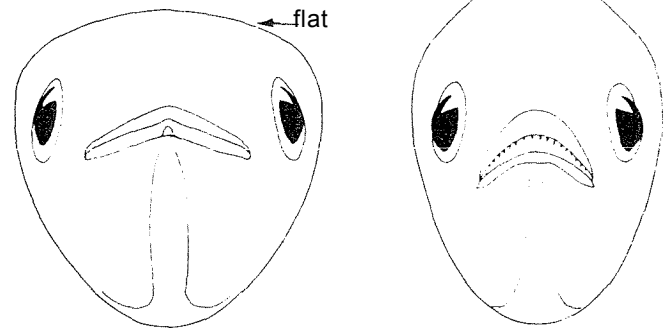
Body robust; head narrow, markedly convex dorsally. Head length 23 to 26% of standard length; fatty (adipose) tissue absent; lips very thick, height increasing markedly toward the centre, upper lip height 20 to 22% of standard length; lower lips without a raised symphysial knob; hind end of upper jaw well below eye level. and reaching vertical from anterior rim of eye; teeth sessile. several rows in upper lip; preorbital massive, filling the space between lip and eye. First dorsal fin origin nearer to snout tip than to caudal fin base; second dorsal fin origin over anterior third of anal fin; no elongate pectoral axillary scale; pectoral fin length 80% of head length; anal fin with 2 spines and 10 soft rays; second dorsal and anal fins lightly scaled anteriorly. Scales in lateral series 42 to 44.

Colour: olive brown on back, yellowish-white below; fins brownish; iris purple.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Agonostomus telfairii: upper lip height 12 to 15% of head lenght (20 to 22% in A. catalai).

Other species of Mugilidae: 3 anal fin spines (2 in Agonostomus species); lips thin or ornamented with crenulations or papillae; interorbital space only gently convex, almost flattened.



Other species of Mugilidae (Mugil)

Agonostomus species

anterior view of head

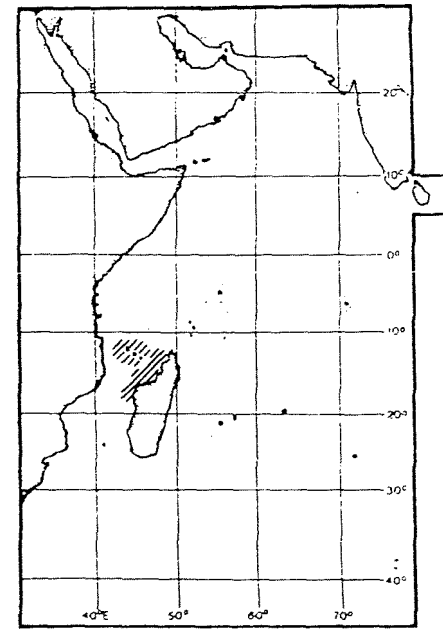
SIZE:

Maximum: about 20 cm; common to 18 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area. found in the Comoro Islands and north Madagascar.

Inhabits freshwaters but may occur in estuaries.



PRESENT FISHING GROUNDS:

Taken mainly in subsistence fisheries in rivers, but apparently there is no commercial fisheries for it.

CATCHES FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with artisanal gear.

Marketed fresh.

MUGIL Agon 2

1983

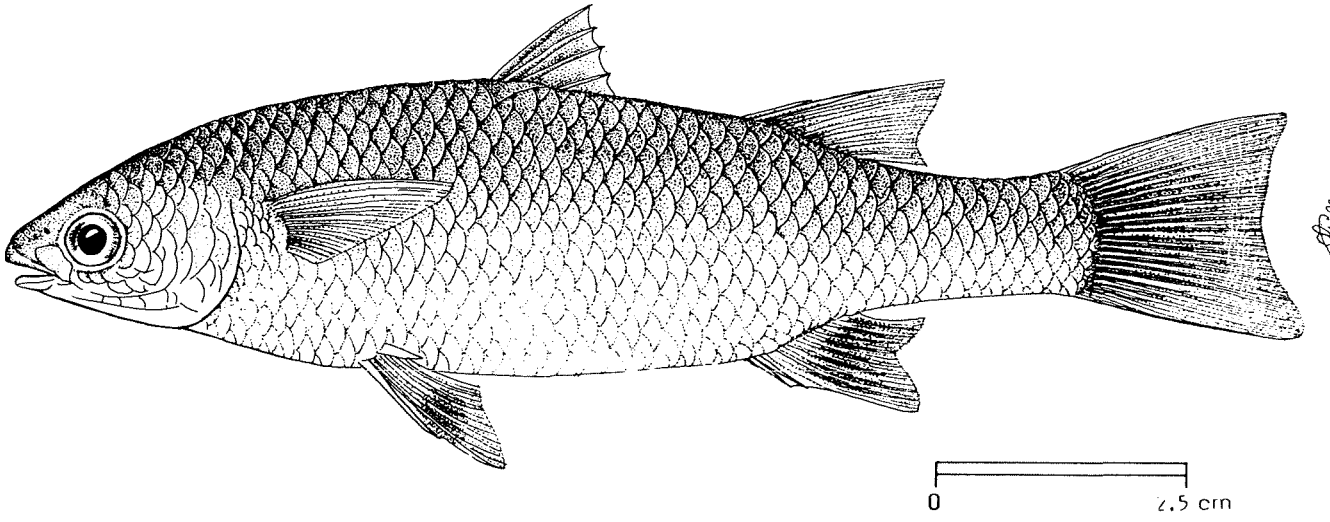
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: MUGILIDAE

FISHING AREA 51
(W. Indian Ocean)

Agonostomus telfairii Bennett. 1832

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Fairy mullet
Fr - Mulet enchanteur
Sp - Lisa aduendada

NATIONAL:

DISTINCTIVE CHARACTERS:

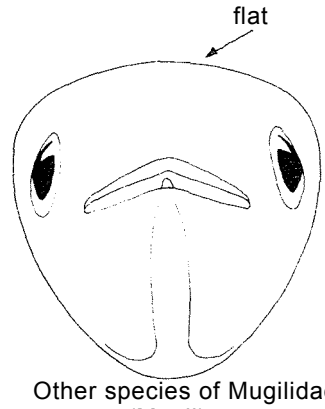
Body robust; head narrow, markedly convex dorsally. Head length 22 to 25% of the standard length; fatty (adipose) tissue absent; lips thick, upper lip height 12 to 15% of standard length, lower lip without a raised symphysial knob; hind end of upper jaw well below level of lower rim of eye and under the anterior third of eye; teeth sessile. 3 to 8 rows in upper lip, 3 to 5 in lower. outer 3 rows unicuspid. other may be unicuspid. bicuspid or tricuspid; preorbital massive, flat, filling the space between lip and eye. First dorsal fin origin nearer the snout tip than to caudal fin base; second dorsal fin origin on vertical through anterior ouarter of anal fin base; no elongate pectoral axillary scale; pectoral fin 81 to 85% of head length; anal fin with 2 spines and 10 soft rays; second dorsal and anal fins lightly scaled anteriorly. Scales in the lateral series 41 or 42.

Colour:

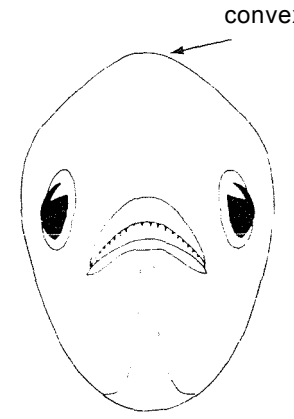
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Agonostomus catalai: upper lip height 20 to 22% of head length (17 to 15% in A. telfairii).

Other species of Mugilidae: 3 anal fin spines (2 in Agonostomus species); lips thin or ornamented with crenulations or papillae; interorbital space only gently convex, almost flat.



Other species of Mugilidae (Mugil)



Agonostomus species

anterior view of head

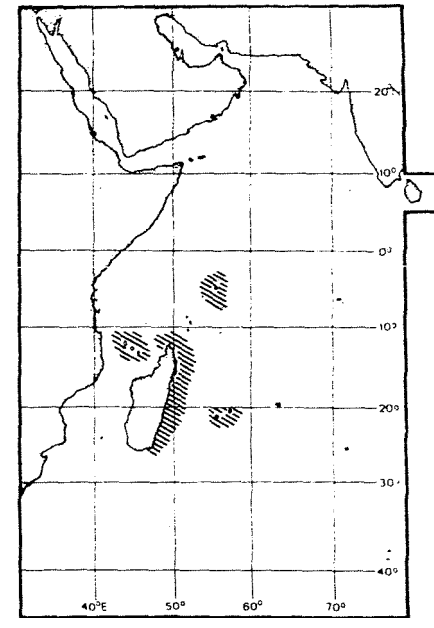
SIZE:

Maximum: 28 cm; common to 12 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area. found in Mauritius. Madagascar. Réunion. Anjuan. the Seychelles and Comoro Islands.

Inhabits mainly freshwaters, but it may occasionally be found in estuaries.



PRESENT FISHING GROUNDS:

Taken mainly in subsistence fisheries in rivers, but apparently there is no commercial fisheries for it.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with artisanal gear.

Marketed fresh.