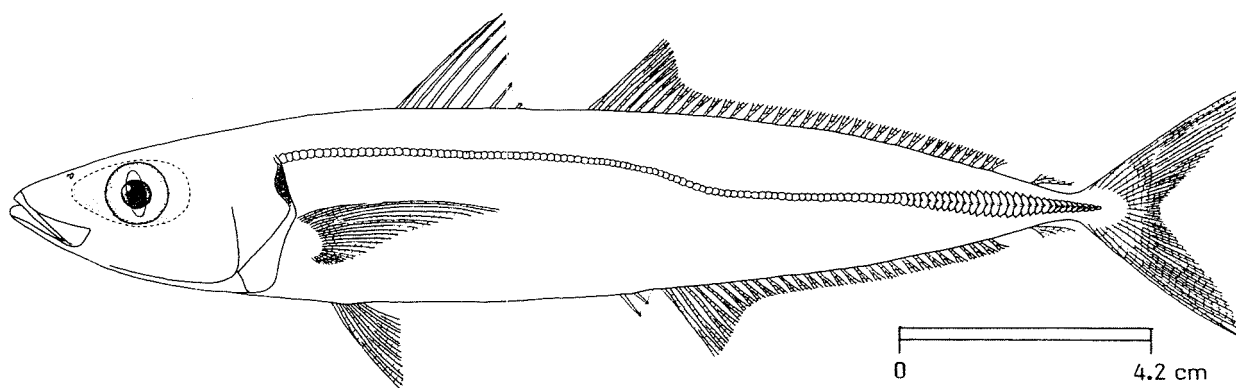


## FAO SPECIES IDENTIFICATION SHEETS

FAMILY: CARANGIDAE

FISHING AREA 51  
(W. Indian Ocean)Decapterus macarellus Cuvier, 1833

## OTHER SCIENTIFIC NAMES STILL IN USE:

Decapterus macrosoma Bleeker (A valid species, but this name has often been misapplied to D. macarellus)Decapterus jacobus (Cuvier, 1833)Decapterus pinnulatus (Eydoux & Souleyet, 1841)Decapterus canonoides Jenkins, 1903

## VERNACULAR NAMES:

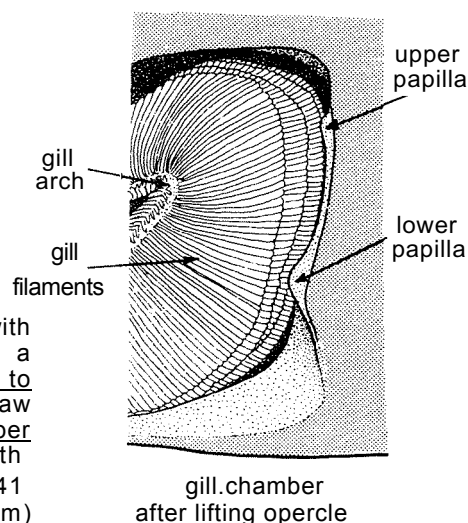
FAO:           En - Mackerel scad  
                   Fr - Comète maquereau  
                   Sp - Macarela caballa

NATIONAL:

## DISTINCTIVE CHARACTERS:

Body very elongate, slender and nearly rounded. Eye moderate, with adipose eyelid well developed, completely covering eye except for a vertical slit centred on pupil; scales on top of head extend forward to anterior margin of pupil; oral valve membrane: at symphysis of upper jaw white, at least in specimens  $\geq 16$  cm fork length; posterior end of upper jaw straight above moderately rounded and slanted anteroventrally; both jaws without teeth; gillrakers including rudiments 10 to 13 upper, 34 to 41 lower and 45 to 54 total on first gill arch. Shoulder girdle (cleithrum) margin with 2 small papillae, the lower papilla the larger. Two widely separate dorsal fins, the first with 8 spines, the second with 1 spine and 31 to 37 soft rays (including finlet); anal fin with 2 detached spines followed by 1 spine and 27 to 31 soft rays (including finlet); terminal dorsal and anal soft rays each consisting of a widely detached finlet; pectoral fin short (58 to 72% of head length, tip of appressed fin failing considerably short of a vertical line from second dorsal fin origin. Lateral line anteriorly with a low regular arch, with junction of curved and straight parts below second dorsal fin between 11th to 13th soft rays; scales in curved part of lateral line 58 to 75; no scutes in curved part; straight part with 18 to 36 scales, followed by 25 to 39 scutes; total scales and scutes in lateral line excluding caudal scales 110 to 138. Vertebrae 10+14.

Colour: in life, bluish-green above, silvery below; small black blotch on margin of opercle near upper edge. Caudal fin yellow-green; dorsal fin lobe sometimes dark distally, anal and pelvic fins pale to whitish.

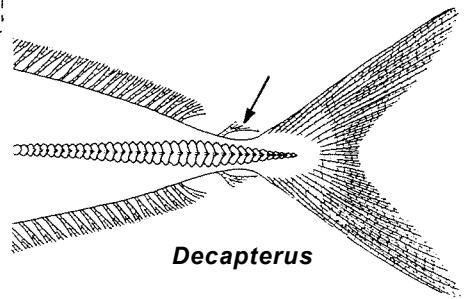
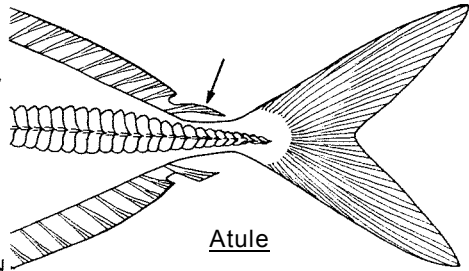
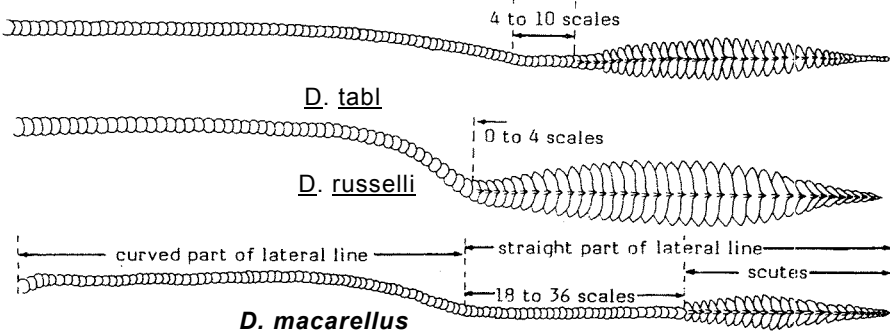
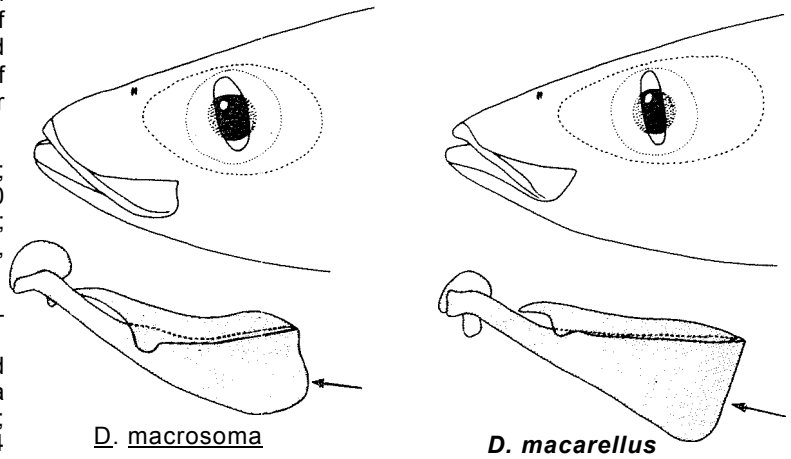


**DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:**

Decapterus macrosoma: posterior end of upper jaw concave above, rounded and produced below; and scales on top of head do not extend forward to beyond posterior margin of pupil (scales on top of head typically extend forward to anterior margin of pupil in D. macarellus).

D. tabl: in life, caudal fin red; straight part of lateral line with 4 to 10 anterior scales (18 to 36 in D. macarellus); and anal fin with 24 to 26 soft rays, including finlet (versus 27 to 31 rays).

D. kurroides and D. russelli: posterior end of upper jaw not as strongly slanted anteroventrally; tip of appressed pectoral fin extending to or nearly to a vertical line from second dorsal fin origin; straight part of lateral line with 0 to 4 anterior scales; and scutes in straight part of lateral line much larger in height.



Atule mate: shoulder girdle (cleithrum) margin smooth, without papillae; terminal dorsal and anal rays joined to penultimate ray at least partially by interradiated membrane; and pectoral fins of adults extend well posterior of a vertical line from second dorsal fin origin.

**SIZE:**

Maximum: largest specimen examined 30 cm fork length and 32 cm total length; common to about 26 cm fork length.

**GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:**

A circumtropical species. In the Western Indian Ocean known from South Africa, the Seychelles, Mascarenes, Red Sea, Gulf of Aden and Sri Lanka.

A schooling species, occurring mostly in open water and common in insular habitats. Sometimes near the surface but usually taken in depths between 40 and 200 m.

Feeds primarily on smaller planktonic invertebrates.

**PRESENT FISHING GROUNDS:**

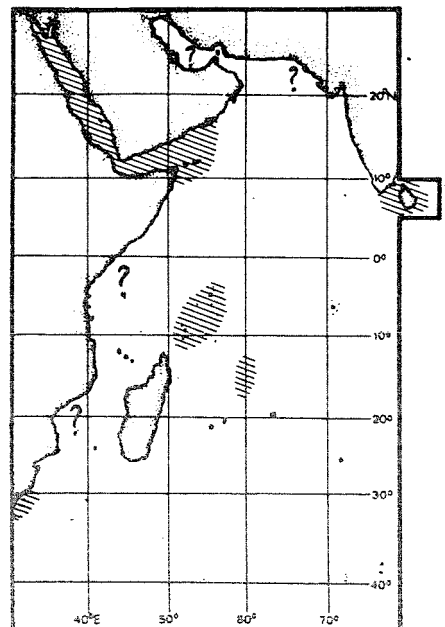
Taken incidentally throughout its range.

**CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:**

Separate statistics are not reported for this species.

Caught with purse seines and trawls.

Marketed fresh and dried salted.

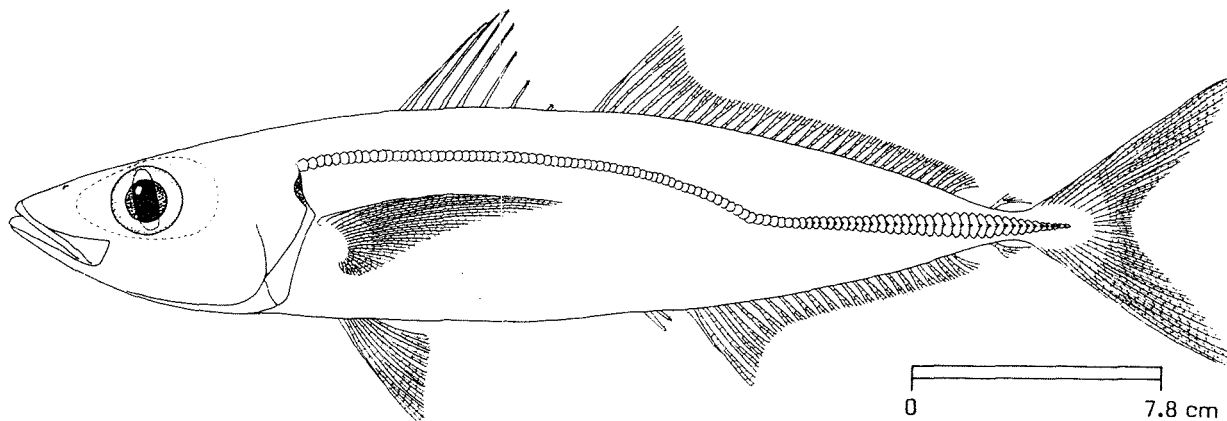


## FAO SPECIES IDENTIFICATION SHEETS

FAMILY: CARANGIDAE

FISHING AREA 51  
(W. Indian Ocean)Decapterus tabl Berry, 1968

OTHER SCIENTIFIC NAMES STILL IN USE: None\*



## VERNACULAR NAMES:

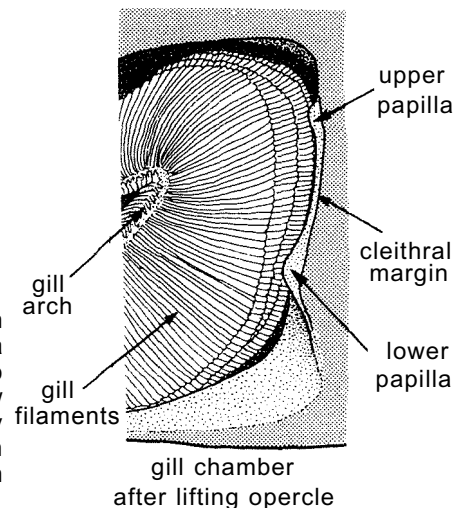
FAO : En - Roughear scad  
Fr - Comère queue rouge  
Sp - Macarela rabo

NATIONAL:

## DISTINCTIVE CHARACTERS:

Body very elongate, slender and nearly rounded. Eye moderate, with adipose eyelid well developed, completely covering eye except for a vertical slit centred on pupil; scales on top of head extend forward to anterior margin of pupil; oral valve (membrane, at symphysis of upper jaw dusky or transparent; posterior end of upper jaw straight above, slightly concave and not strongly slanted anteroventrally. Upper jaw with an irregular series of minute teeth anteriorly, which become obsolete with age; lower jaw with a single series of minute teeth; gillrakers (including rudiments) 10 to 12 upper, 30 to 33 lower and 41 to 45 total on first gill arch. Shoulder girdle (cleithrum) margin with 2 small papillae, the lower papilla the larger. Two widely separate dorsal fins, the first with 8 spines, the second with 1 spine and 30 to 34 soft rays including finlet); anal fin with 2 detached spines followed by 1 spine and 24 to 26 soft rays (including finlet); terminal dorsal and anal soft rays each consisting of a widely detached finlet; pectoral fin 62 to 83% of head length, tip of appressed fin falling slightly to distinctly short of a vertical line from second dorsal fin origin. Lateral line anteriorly with a low regular arch, with junction of curved and straight parts below second dorsal fin between 11th to 14th soft rays; scales in curved part of lateral line 61 to 71; no scutes in curved art; straight art with 4 to 10 scales, followed by 30 to 40 scutes; total scales and scutes in lateral line excluding caudal scales 103 to 113. Vertebrae 10+14.

Colour: in life, metallic blue to greenish above, silvery below; small black blotch on margin of opercle near upper edge. Caudal fin bright red and tips of soft dorsal fin rays tinged with red.



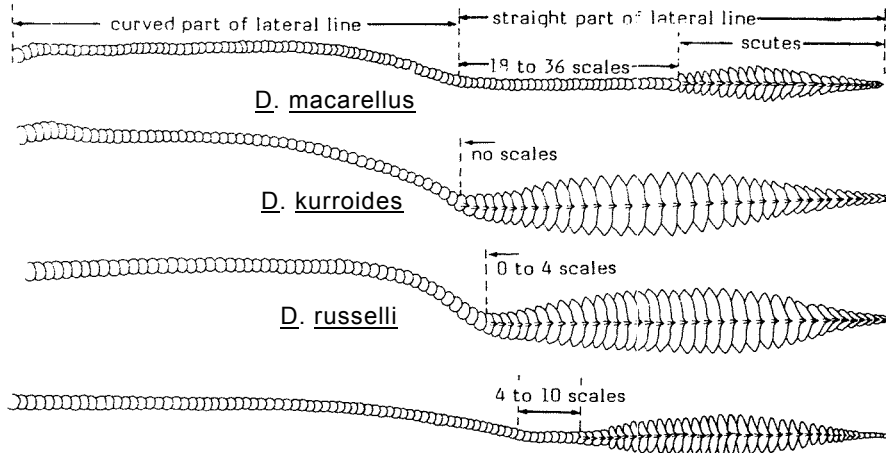
\* In Japan the name Decapterus russelli has often been misapplied to this relatively common species. The misapplication of the name originates with Bertir, and Dollfus (1948, Mem.Mus.natn.Hist.Nat.) who made an invalid neotype selection for D. russelli (Rüppell)

**DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:**

D. macarellus and D. macrosoma: in life, caudal fin yellow to dusky; straight part of lateral line with 14 to 36 anterior scales (4 to 10 in D. tabl); anal fin with 27 to 31 soft rays, including finlet (versus 24 to 26 rays); and upper jaw without teeth (minute teeth near symphysis in D. tabl).

Decapterus kurroides: scales in curved lateral line 47 to 55 and total elements in lateral line 80 to 86 (versus 61 to 71 and 103 to 113, respectively, in D. tabl); pectoral fin longer, 88 to 105% of head length (versus 62 to 83%); and scutes in straight part of lateral line much larger in height.

D. russelli: in life, caudal fin usually hyaline to dusky; scales in curved lateral line 42 to 62 and total elements in lateral line 77 to 102 (versus 61 to 71 and 103 to 113, respectively, in D. tabl); and scutes in straight part of lateral line much larger in height.



Atule mate: shoulder girdle (cleithrum) margin smooth, without papillae; terminal dorsal and anal rays joined to penultimate ray at least partially by interradial membrane; and pectoral fins of adults extend well posterior of a vertical line from second dorsal fin origin.

**SIZE:**

Maximum: the largest Indo-West Pacific species of Decapterus, commonly attains 35 cm fork length; maximum about 48 cm fork length.

**GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:**

Known from the Indian Ocean on the basis of a single collection off Kenya (3°00'S, 40°36'E) made with a 300 m pelagic trawl fishing at a depth of 250 m. Elsewhere in the Indo, West Pacific known from Japan and Okinawa (where it is the dominant species of Decapterus fished commercially), and the Hawaiian Archipelago (Necker Island). Also occurs in the Atlantic Ocean: Bermuda, South America off Colombia and Venezuela, and at St. Helena.

Most captures of this deep-water, schooling species are from depths of 200 to 360 m.

Feeds primarily on smaller planktonic invertebrates.

**PRESENT FISHING GROUNDS:**

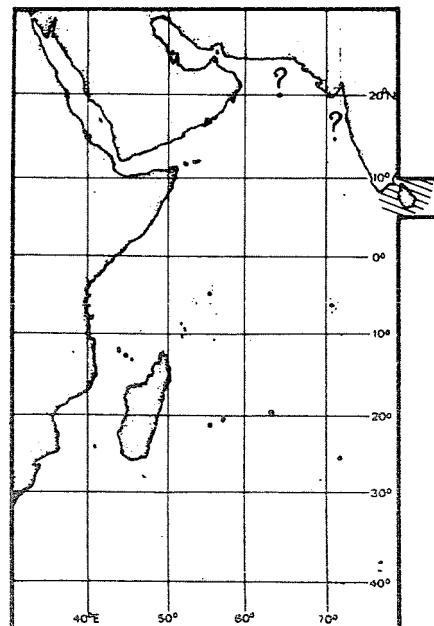
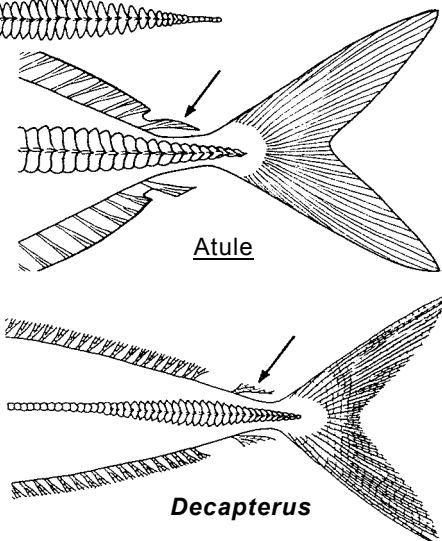
Coastal waters throughout its range.

**CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:**

Separate statistics are not reported for this species.

Caught with purse seines and trawls.

Marketed fresh and dried salted.

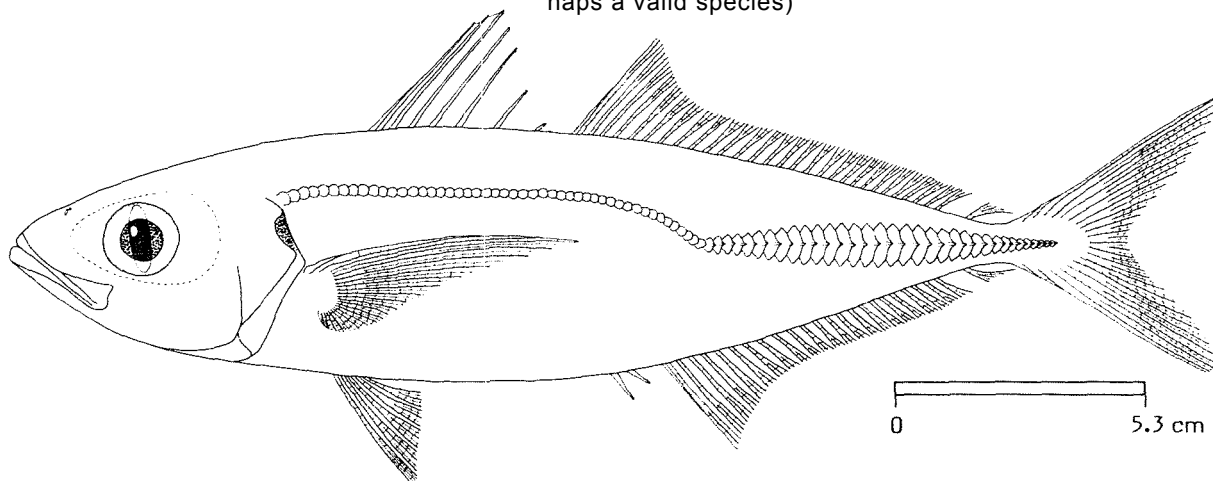


## FAO SPECIES IDENTIFICATION SHEETS

FAMILY: CARANGIDAE

FISHING AREA 51  
(W. Indian Ocean)Decapterus kurroides Bleeker, 1855

## OTHER SCIENTIFIC NAMES STILL IN USE:

Decapterus kurroides akaadi Abe, 1958 (Status uncertain, perhaps a valid species)

## VERNACULAR NAMES:

FAO : En - Redtail scad  
Fr - Comète mauouane  
Sp - Macarela mauouana

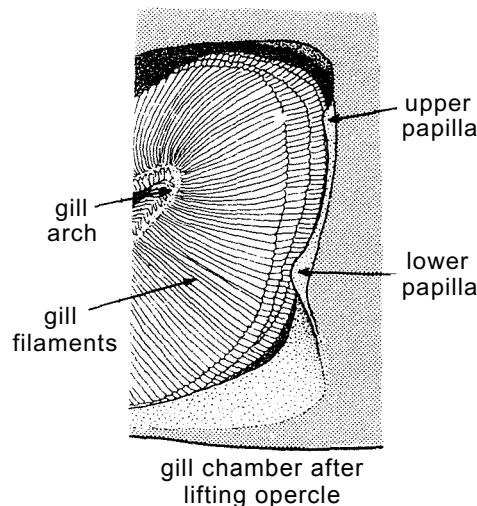
NATIONAL:

## DISTINCTIVE CHARACTERS:

Body elongate, moderately slender and slightly compressed. Eye moderate, with adipose eyelid well developed, completely covering eye except for a vertical slit centred on pupil; scales on top of head extend forward to anterior margin of eye; oral valve (membrane) at symphysis of upper jaw dusky or transparent; posterior end of upper jaw straight above, slightly concave and not noticeably slanted anteroventrally; upper jaw with a narrow band of minute teeth, widest anteriorly; lower jaw with a single irregular series of minute teeth; gillrakers (including rudiments) 9 to 12 upper, 26 to 32 lower and 36 to 41 total on first gill arch. Shoulder girdle (cleithrum) margin with 2 small papillae, the lower papilla the larger.

Two widely separate dorsal fins, the first with 8 spines, the second with 1 spine and 28 to 30 soft rays (including finlet); anal fin with 2 detached spines followed by 1 spine and 22 to 26 soft rays (including finlet); terminal dorsal and anal soft rays each consisting of a widely detached finlet; pectoral fin moderately long 88 to 105% of head length, tip of appressed fin typically extending to or slightly beyond a vertical line from second dorsal fin origin. Lateral line anteriorly with a low regular arch, with junction of curved and straight parts below second dorsal fin between 11th to 13th soft rays; scales in curved part of lateral line 47 to 55; scutes in curved part 0 to 2; straight part without anterior scales, and with 31 to 36 scutes; total scales and scutes in lateral line (excluding caudal scales 80 to 86. Vertebrae 10+14.

Colour: in life, bluish-green above, silvery white below; moderate black blotch on margin of opercle near upper edge. Caudal fin red; spinous dorsal and second dorsal fin lobe sometimes dark, anal and pelvic fins pale dusky to white.



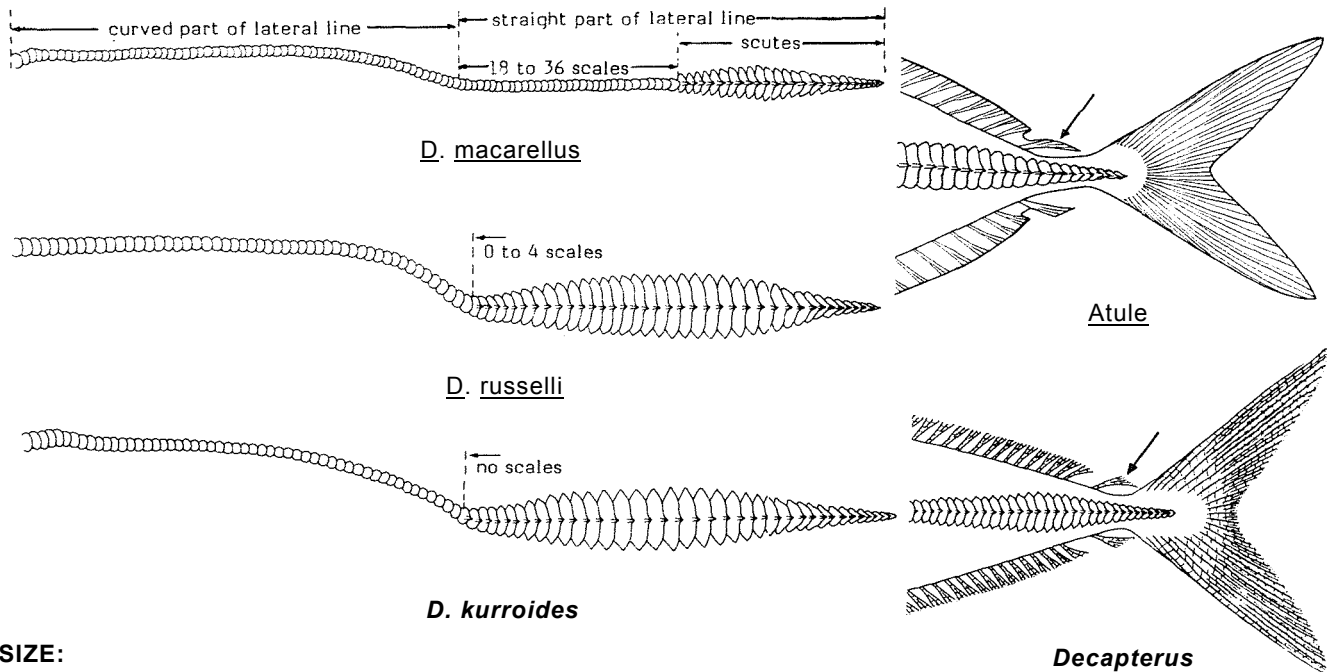
## DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Decapterus russelli: in life, caudal fin hyaline to dusky; gillrakers on lower limb of first arch usually 32 to 39 (usually 26 to 32 in D. kurroides); soft anal fin rays (including finlet) 25 to 29, rarely 25 (versus 22 to 26, rarely 26); arid eye usually smaller in similar-sized fish.

D. tabl: scales in curved lateral line 61 to 71 and total elements in lateral line 103 to 113 (versus 47 to 55 and 80 to 66, respectively, in D. kurroides); pectoral fin shorter, 62 to 83% of head length (versus 88 to 105%); and scutes in straight part of lateral line much smaller in height.

D. macarellus and D. macrosorna: straight part of lateral line with 14 to 36 anterior scales (versus no scales, only scutes); tip of appressed pectoral fin falling considerably short of a vertical line from second dorsal fin origin; and scutes in straight part of lateral line much smaller in height.

Atule mate: in life, caudal fins yellow; shoulder girdle (cleithrum) margin smooth, without papillae; and terminal dorsal and anal rays joined to penultimate ray at least partially by interradiation membrane.



### SIZE:

Maximum: largest specimen examined 41 cm fork length and 44 cm total length; common to about 30 cm fork length.

### GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Indian Ocean occurrence poorly known, due to the deep water habitat preference of this species; in the area, known only from off Kenya, Tanzania (Dar-as-Salaam) and Réunion Island. Elsewhere in the Indo-West Pacific known from Indonesia, the Philippines and Australia; also, Taiwan Island, Okinawa and Japan, if Decapterus kurroides akaadsi is conspecific.

A deep-water, schooling species taken in depths of 100 to 300 m, but usually below 150 m.

Feeds primarily on smaller planktonic invertebrates.

### PRESENT FISHING GROUNDS:

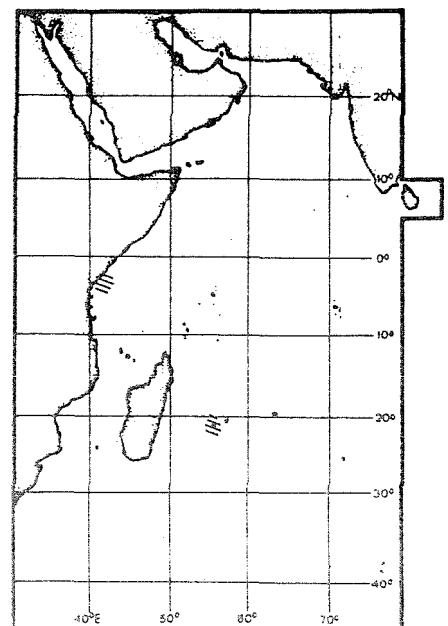
Taken incidentally throughout its range.

### CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with midwater trawls.

Marketed fresh and dried salted.

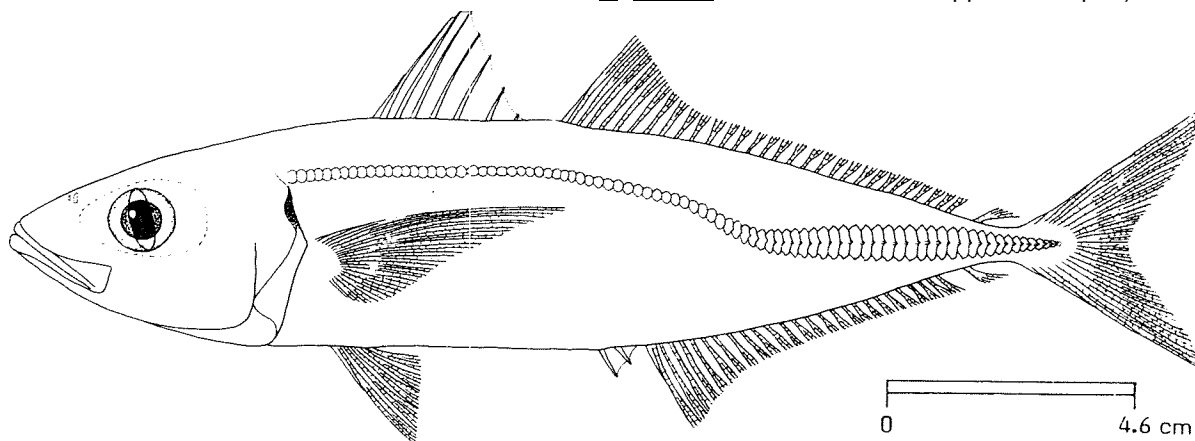


## FAO SPECIES IDENTIFICATION SHEETS

FAMILY: CARANGIDAE

FISHING AREA 51  
(W. Indian Ocean)Decapterus russelli (Rüppell, 1830)

## OTHER SCIENTIFIC NAMES STILL IN USE:

Decapterus kiliche (Cuvier, 1833)Decapterus lajang Bleeker, 1885 (This name has often been misapplied to D. macrosoma)Decapterus dayi Wakiya, 1928Decapterus tabl Berry, 1968 (A valid species for which the name D. russelli has often been misapplied in Japan)

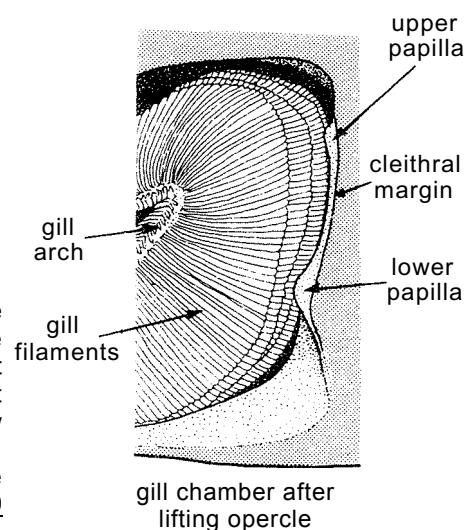
## VERNACULAR NAMES:

FAO : En - Indian scad  
Fr - Comère indienne  
Sp - Macarela indica

NATIONAL:

## DISTINCTIVE CHARACTERS:

Body elongate, moderately slender and slightly compressed. Eye moderate, with adipose eyelid well developed, completely covering eye except for a vertical slit centred on pupil; scales on top of head do not extend forward to beyond centre of pupil; oral valve (membrane) at symphysis of upper jaw dusky or transparent; posterior end of upper jaw straight above, slightly concave and not noticeably slanted anteroventrally. Both jaws with an irregular row of minute teeth anteriorly and a single series posteriorly; gillrakers (including rudiments) 10 to 14 upper, 30 to 39 lower and 41 to 53 total on first gill arch. Shoulder girdle (cleithrum) margin with 2 small papillae, the lower papilla the larger. Two widely separate dorsal fins, the first with 8 spines, the second with 1 spine and 28 to 33 soft rays (including finlet); anal fin with 2 detached spines followed by 1 spine and 25 to 29 soft rays (including finlet); terminal dorsal and anal soft rays each consisting of a widely detached finlet; pectoral fin 76.5 to 97.0% of head length, tip of appressed fin falling short of to slightly beyond a vertical line from second dorsal fin origin. Lateral line anteriorly with a low regular arch, with junction of curved and straight parts below second dorsal fin between 11th to 13th soft rays; scales in curved part of lateral line 42 to 62; scutes in curved part 0 to 4; straight part with 0 to 4 scales, followed by 30 to 40 scutes; total scales and scutes in lateral line (excluding caudal scales) 7;r to 102 Vertebrae 10+14.



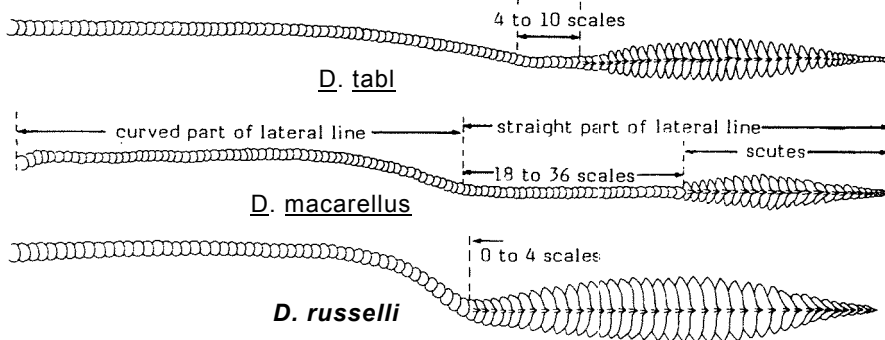
Colour: in life, bluish-green above, silvery below; small black blotch on margin of opercle near upper edge. Caudal fin hyaline to dusky brown, second dorsal fin hyaline basally, light dusky distally; other fins mostly hyaline, except pelvic fins of adult males slightly dark.

## DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

*Decapterus kurroides*: in life, caudal fin red; gillrakers on lower limb of first arch usually 26 to 32 (usually 32 to 39 in *D. russelli*); soft anal fin rays (including finlet) 22 to 26, rarely 26 (versus 25 to 29, rarely 25); and eye usually larger in similar-sized fish.

*D. tabl*: in life, caudal fin usually hyaline to dusky; scales in curved lateral line 61 to 71 and total elements in lateral line 103 to 113 (versus 42 to 62 and 77 to 102, respectively in *D. russelli*); and scutes in straight part of lateral line smaller in height.

*D. macarellus* and *D. macrosoma*: straight part of lateral line with 14 to 36 anterior scales (versus 0 to 4 scales); tip of appressed pectoral fin falling considerably short of i3 vertical line from second dorsal fin origin; and scutes in straight part of lateral line much smaller in height.



*Atule mate*: shoulder girdle (cleithrum) margin smooth, without papillae; and terminal dorsal and anal rays joined to penultimate ray at least partially by interradiar membrane.

### SIZE:

Maximum: largest specimen examined 35 cm fork length; common to about 20 cm fork length.

Remarks: two somewhat different morphological "forms" of *Decapterus* are here combined under one name. The more abundant form is characterized by a more robust body, larger scutes, a relatively low number of scales in the curved part of the lateral line and tends to have more gillrakers. The more elongate "*lajang*" form attains a larger size and usually has shorter pectoral fins. Some morphologically intermediate specimens exist and because the "*lajang*" form tends to be more typical of fish from insular habitats, the observed differences are believed to be environmentally determined.

### GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Broadly distributed throughout the Western Indian Ocean and from Japan to Australia in the Western Pacific Ocean. The most common Indian Ocean *Decapterus* in coastal waters and on open banks at depths not exceeding 100 m.

Reaches sexual maturity during the first year of life at about 12 cm total length. Fish of 15 cm total length (average weight 50 g) and 2 to 3 years of age are the most frequent in catches.

Feeds primarily on smaller planktonic invertebrates.

### PRESENT FISHING GROUNDS:

Coastal waters throughout its range.

### CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with purse seines and trawls.

Marketed fresh and dried salted.

