

by Paul M. Shiota

**Valid name** *Decapterus macarellus* (Cuvier and Valenciennes 1833) (Fig. 53)  
**Synonymy** *Caranx macarellus* Cuvier and Valenciennes 1833  
*Caranx pinnulatus* Eydoux and Souleyet 1842  
*Decapterus canonoides* Jenkins 1903  
*Decapterus pinnulatus* Jordan and Evermann 1905  
*Decapterus sanctae-helenae* Fowler 1928  
 (primarily from Norman 1935)

**Common and vernacular names** Mackerel scad; opelu; opelu mama

### Distribution

Present in large numbers around the main islands. Captured from Nihoa to Kure Atoll in depths from 22 to 38 m.

### Distinguishing characteristics

D. VIII-I, 32-33-I; A. II-I, 28-29-I; scutes 20-25; LLs. 100-116. Body oblong, little compressed, almost perfectly fusiform; head moderate, pointed; mouth rather small, slightly oblique; jaws equal; palatines toothless or with a single series of minute teeth; no vomerine teeth; a small band of teeth posteriorly on tongue; adipose eyelid covering nearly entire eye; lateral line nearly straight from origin to interdorsal space, then descends until over fifth anal ray and continues straight to caudal fin (Jordan and Evermann 1905; Norman 1935).

Metallic bluish-black to bluish-green above and silvery white below in life. Small black spot near the upper margin of the opercle. Attains a length of about 50.0 cm (Gosline and Brock 1960).

During the NWHI surveys, three other *Decapterus* species were recorded. *Decapterus tabl* was easily separated from its Hawaiian congeners by its reddish tail. The other two species have yellow tails. *Decapterus macrosoma* has 28-30 rays on its anal fin and 25-30 scutes (Wakiya 1924; Berry and Smith-Vaniz 1978); *D. muroadsi* has 26-28 rays on its anal fin and 33 scutes (Wakiya 1924).

### Life history

After hatching, the young fish remain in the pelagic environment, often forming large schools. Fishermen have reported schools of young fish as far as 80 nmi offshore.

Juvenile fish, 12.0-18.0 cm SL, first enter the coastal fisheries in late fall and winter. Once inshore, they grow at a fairly rapid rate, reaching 20.0, 27.1, and 30.7 cm SL after 12, 24, and 36 months, respectively (Yamaguchi 1953).

It attains sexual maturity by the end of the first year of life at about 18.0 cm SL. Spawning is in pelagic waters, in close proximity to its coastal habitat, from March-August, with a peak in May-July. Mature adults, 18.0 and 28.1 cm SL, have ovaries with approximately 83,000 and 212,500 eggs, respectively. Eggs are generally spherical, almost transparent, and contain a single shiny oil globule, which is 0.20-0.27 mm in diameter and is surrounded by tiny clusters of yolk granules (Yamaguchi 1953).

The species feeds heavily on zooplankton, mainly crustaceans, which comprised 94% of the total number of food items in the stomach (Yamaguchi 1953). Hyperiid amphipods and crab megalops were the most important among the crustaceans ingested. Thirteen of 24 stomachs examined by Yamaguchi also contained fish larvae. The stomach samples examined, however, may not reflect the true diet of opelu, because sampling was somewhat biased in that it was conducted under a night light which attracted phototactic animals. It also did not account for possible seasonal and geographical differences in zooplankton abundance. For example, the diet of fish taken in Puerto Rico and the Virgin Islands was mainly pteropods (Randall 1967).

### Gear and catch

An excellent food fish, mackerel scad is principally harvested commercially with hoop net and handline; gill nets and haul seines account for the remainder. In the late 1940's, hoop nets accounted for about 70% of the landings and handline the remaining 30%. However, in recent years (1971-78), the handline fishery accounted for a larger proportion of the landings (54%) compared with the hoop net fishery which produced only 39%.

In 1961-79, mackerel scad landings in Hawaii fluctuated between 77,874 and 194,143 kg and averaged 122,246 kg.

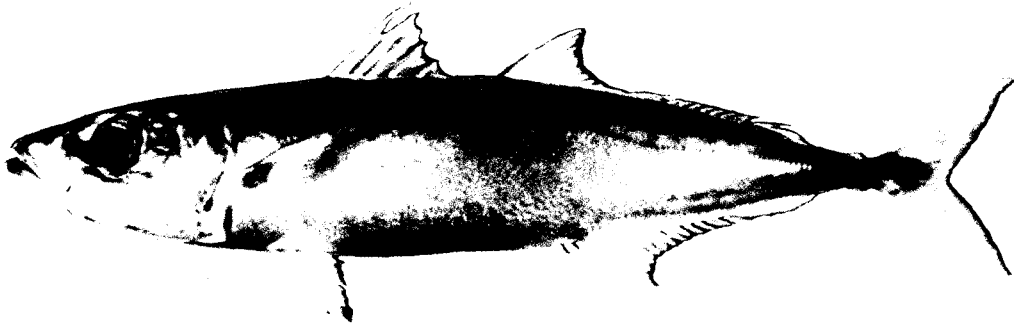


Figure 53.—*Decapterus macarellus*.