

A Revision of Selected Genera of the Family Carangidae (Pisces) from Australian Waters

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ABSTRACT. An annotated list of the 63 species in 23 genera of carangid fishes known from Australian waters is presented. Included in these 63 are eight endemic species, eight new Australian records (*Alepes vari*, *Carangoides equula*, *C. plagiotaenia*, *C. talamparoides*, *Caranx lugubris*, *Decapterus kurroides*, *D. tabl* and *Seriola rivoliana*) and a new species in the genus *Alepes*. A generic key and specific keys to *Alectis*, *Alepes*, *Carangoides*, *Scomberoides*, *Selar*, *Ulua* and *Uraspis* are given. The systematics of the 32 Australian species of *Alectis*, *Alepes*, *Atule*, *Carangoides*, "*Caranx*", *Elagatis*, *Gnathanodon*, *Megalaspis*, *Pantolabus*, *Scomberoides*, *Selar*, *Selaroides*, *Seriolina*, *Ulua* and *Uraspis* are covered in detail. For each species a recommended common name, other common names, Australian secondary synonymy, diagnosis, colour notes, description, comparison with other species, maximum recorded size, ecological notes and distribution are given. Specific primary synonymies are listed when the type locality is Australia or Papua New Guinea.

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Introduction

The family Carangidae comprises fishes whose body shapes vary from elongate and fusiform to deeply ovate and strongly compressed. Their habits range from pelagic to demersal; many are semi-pelagic. Known variously as trevally, jack, scad, mackerel, kingfish, queenfish, rainbow runners, darts, amberfish and pompano, approximately 140 species of carangids have been recorded worldwide (Laroche *et al.*, 1984).

Sixty three carangid species are known to occur in Australian waters, of which eight are Australian or Australian and south Papuan endemics. Diversity is greatest in tropical regions, with 52 of these species occurring predominantly north of 23°S while only six have temperate distributions. Throughout the range occupied, habitats vary from estuarine and shallow neritic to reef, offshore continental shelf and oceanic waters.

In northern Australia, the Carangidae are an abundant and ecologically important element of a rich multispecies fish fauna. Although their economic value to the region is

restricted by limited marketing potential within Australia (Okera *et al.*, 1981), carangids are a major component of a Taiwanese demersal pair-trawl fishery in the north and north-western sectors of the Australian Fishing Zone. They are also taken in large quantities (and discarded) as trash in prawn fisheries throughout the region, and are regarded as excellent sporting fish by recreational fishermen. While statistics on total (including trash) catches in the zone are not kept, the 2,135 tonnes taken by the Taiwanese in 1979 is insignificant when compared with the 3.7 million tonnes of carangids landed throughout the world in that year (FAO, 1980).

Despite their economic value and ecological importance, the taxonomy of many carangid genera is poorly understood. Much of the early work on Indo-West Pacific carangids, including many species that occur in Australian waters, was carried out by Forsskäl (1775), Rüppell (1829–1830), Cuvier & Valenciennes (1832, 1833) and Bleeker (1852).

While there are isolated records of carangids in the Australian literature of the mid-1800s (e.g. Richardson,

1848, Castelnau, 1875), Alleyne & Macleay's (1877) report represented the first major contribution on the family's Australian fauna. Subsequently, Klunzinger (1879), Günther (1880), Macleay (1881, 1882, 1884), De Vis (1884), Kent (1893), Ogilby (1913, 1915), McCulloch (1915, 1924, 1929–1930) and Whitley (1931, 1932, 1934, 1937, 1940, 1947, 1951a, 1951b) recorded and described a large number of carangid fishes from throughout Australia's temperate and tropical waters.

Many of these works added to an already confusing array of primary and secondary synonymies for Australian carangids. McCulloch (1929–1930) and then Munro (1958, 1960a, 1960b) helped to clarify some, but by no means all, of the problems. Collectively, the works of Munro (1958, 1960a, 1960b), Marshall (1964), Taylor (1964), Grant (1978), Sainsbury *et al.* (1984) and to a lesser extent Chan *et al.* (1974) represented the state-of-the-art in Australian carangid taxonomy prior to the present study.

Since the declaration of the Australian Fishing Zone in 1979, there has been a rapid development of policies aimed at the rational utilisation and management of Australia's marine resources.

A prerequisite for successful management of fish stocks, and in particular the management of the multispecies stocks

of tropical Australian waters, is the accurate identification of component species. This study was initiated in response to recognised inadequacies in the taxonomic knowledge of Australian carangid fishes. A large-scale CSIRO fishery resource survey in north Australian waters in 1980–1981 collected specimens from habitats not previously sampled, and for many species these collections provided an excellent supplement to Australian museum material.

While 21 carangid genera are known to occur in Australian waters, seven of these were omitted from this work on the basis of inadequate collections (*Naucrates*, *Seriola*, *Trachinotus* and *Trachurus*) or because they are currently subjects of worldwide revisions (Smith-Vaniz, personal communication) that will necessitate changes in nomenclature (*Pseudocaranx*, *Caranx* and *Decapterus*). Treatment of Australian species of these genera has been postponed for inclusion in a subsequent study.

Materials and Methods

Dial calipers were used for measurements of less than 20 cm, a 1-m rule for those greater than this. Fig. 1 illustrates the

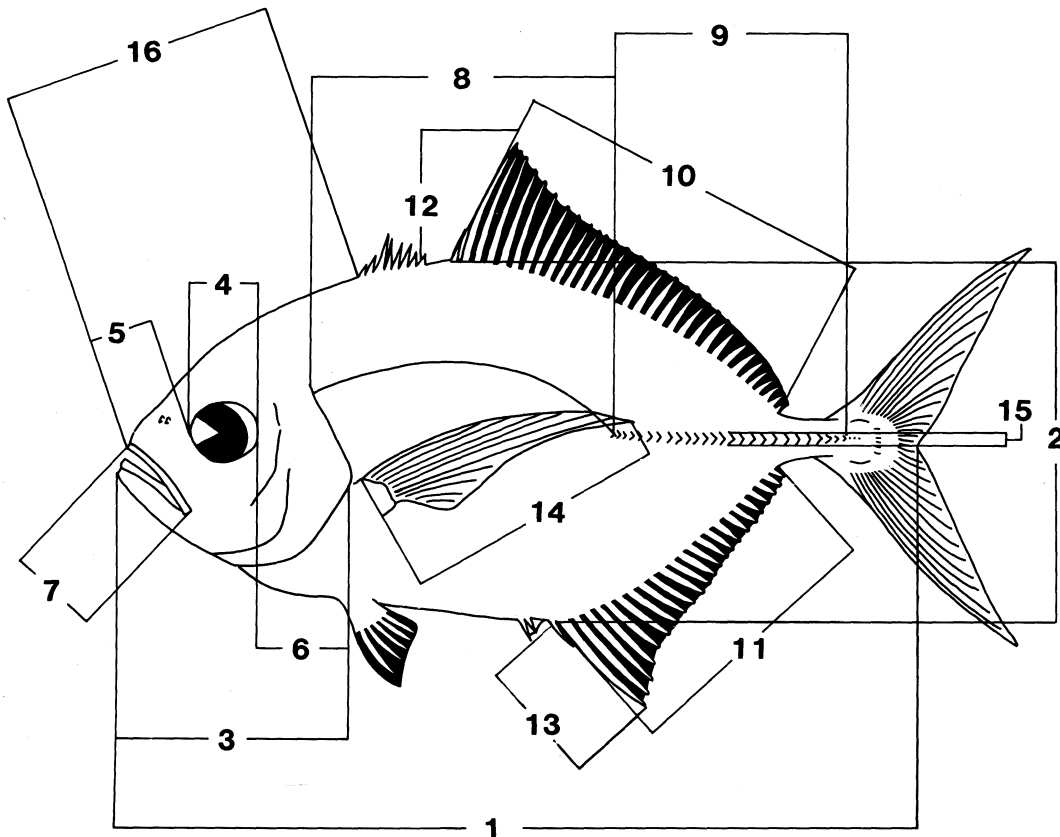


Fig.1. Measurements used in the description of specimens (unless otherwise stated, proportional measurements are expressed as a percentage of length to caudal fork). 1 – fork length (LCF); 2 – body depth (BD); 3 – head length (HL); 4 – eye diameter; 5 – snout length; 6 – postorbital length; 7 – upper jaw length; 8 – curved lateral line segment length (CLL); 9 – straight lateral line segment length (SLL); 10 – soft dorsal fin base length; 11 – soft anal fin base length; 12 – soft dorsal fin lobe height; 13 – soft anal fin lobe height; 14 – pectoral fin length; 15 – maximum scute length; 16 – snout to origin of spinous dorsal fin.