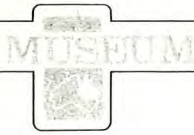


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Queensland Museum

Gregory Terrace, Fortitude Valley, Qld. Australia 4006 Ph. 52 2716

RJMCK/LK

F83/151

1st May, 1984

FIRTA PROJECT 83/58 — "Systematic Revision of the Australian Fishes of the Family Pomadasysidae"

The Secretary,  
Fishing Industry Research Committee,  
c/- Department of Primary Industries,  
Edmund Barton Building,  
Broughton Street,  
BARTON. A.C.T. 2600.

Dear Sir,

Enclosed please find a manuscript entitled "The grunters and javelin-fishes of Australia". This paper summarizes information gained during a study of the fishes of the family Pomadasysidae (Haemulidae) under a FIRTA grant, and is partial fulfilment of the conditions of the grant. The full revision will be published as a detailed scientific report in Memoirs of the Queensland Museum and F.A.O. Species Catalogue (F.A.O., United Nations, Development Programme).

I trust the paper will be suitable for publication in Australian Fisheries; the photographs are from Museum specimens. Permission to use fig.3 will be required from the Australian Museum (specimen 1B-2153, arranged by Mark McGrouther, Fish Department). The illustrations of G. Coates used in Guide to Fishes, 1982 edition, page 389, "Pomadasys opercularis"=P. argenteus, and page 390, "Pomadasys hasta"=P. kaakan, can be used (if required) on request to Mr. E. Grant, Department of Harbours and Marine, Brisbane, Queensland.

I wish to thank the Committee for their generous support for this study.

Yours sincerely,

\* Fig 3 needs only to be acknowledged "K Lowe, Australian Museum photo" file is Parton, Catalogue of Fishes.

R.J. McKay  
CURATOR OF FISHES

R. McKay

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THE GRUNTERS AND JAVELIN-FISHES  
OF AUSTRALIA

R.J. McKay  
Queensland Museum

The tropical and subtropical fishes of the genus Pomadasys (family Haemulidae) are known as grunters, due to their habit of emitting a grunting noise produced by the pharyngeal bones in the throat, or occasionally as javelin-fishes, due to the long dorsal spines and sometimes elongate second anal fin spine.

All are marine fishes, but many species, particularly as juveniles, enter estuaries and remain there for a considerable time, feeding on prawns, crabs, worms, molluscs and fishes. The large adults frequent mouths of rivers and the lower reaches of estuaries, bays, and coastal waters in the vicinity of sandbars. The smaller species are commonly captured, sometimes in large quantities, by prawn trawlers. The larger commercially important ones are caught by line or netted.

The grunters are easily identified by the pores on the undersurface of the lower jaw; in Pomadasys there are two pores, one on each side of the chin, followed by a central pit or short groove containing a slit-like pore on each side within (in the related sweetlips of the genus Plectorhinchus there are six simple pores). The anal fin is preceded by three stout

spines, the second of which is frequently longer and stronger than the other two.

Of the fifteen species in the Indo-west Pacific region, five are known to occur in Australian waters. P. maculatus the blotched grunter and P. trifasciatus the silver grunter are small species taken by trawlers in northern Australia. The larger banded grunter P. kaakan previously known in Australia as P. "hasta", grows to 80 cm and is a valuable food fish. The smaller spotted grunter P. argenteus previously named P. "opercularis" (not P. opercularis = P. commersoni from the western Indian Ocean) attains a length of 50 cm and is an excellent food and sport fish. Both are common in northern waters. The large headed grunter P. auritus is exceedingly rare and in Australia known only from a single specimen found floating "half dead" in Newcastle harbour, New South Wales, in July, 1948.

Much of the confusion in the scientific names applied to the fishes of this genus is due to the changes in shape and colour pattern that occur with growth, and the lack of comparative studies with similar fishes from other areas of the Indian and western Pacific Oceans.

The following systematic account of the Australian Pomadasys species is part of a world revision of the genus now in preparation.

KEY TO SPECIES

- 1. a. Body with large blackish blotches; spiny dorsal fin with a large black blotch .....  
..... Pomadasys maculatus  
(Blotched grunter)
- b. Body without large blotches but may have broken crossbars, transverse bars or longitudinal wavy lines breaking up into scattered dark spots with age ..... 2
- 2. a. Head large, the gill cover and corner of preoperculum greatly produced as rounded lobes, the former reaching to at least one third to one half length of pectoral fin (Fig. 3); scales around caudal peduncle 16; body golden silvery with scattered dark brown to black spots .....  
..... Pomadasys auritus  
(Large-head grunter)
- b. Head normal, the gill cover and corner of preoperculum not greatly produced and does not reach much beyond the origin of the pectoral fin; scales around caudal peduncle 18 to 23; body with or without spots or interrupted transverse bars ..... 3
- 3. a. Spiny dorsal fin membranes without blackish spots or blotches; body silvery, juveniles with three longitudinal stripes, adults plain silvery with a dark spot on opercle, or with a broad slightly darker horizontal band from origin of lateral line to middle of tail, and a much narrower one at base of dorsal fins; soft dorsal fin rays 12½ to 13½ ..... Pomadasys trifasciatus  
(Silver grunter)

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b. Dark spots or blotches on spiny dorsal fin membranes; soft dorsal fin rays usually  $14\frac{1}{2}$  ..... 4

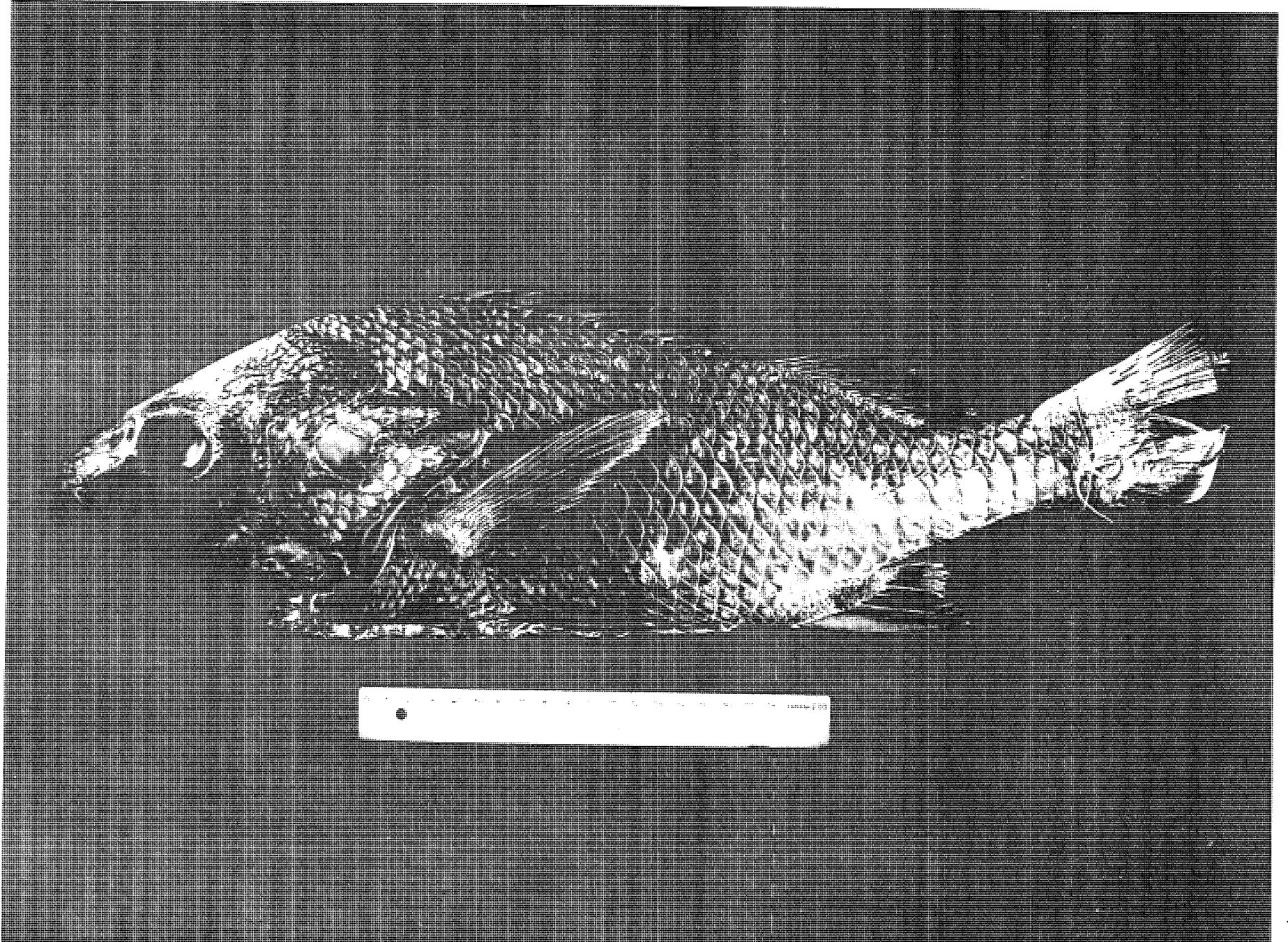
4. a. Juveniles with 15 or more narrow wavy longitudinal stripes formed of contiguous darker spots which become scattered, and finally in adults, a dark spot at the centre of most body scales on back and upper sides; scales around caudal peduncle 21 to 22 ..... Pomadasys argenteus

(Spotted grunter)

b. Juveniles with 8 to 12 narrow vertical bars which become interrupted, and appear as vague crossbars of double blotches, or 4 longitudinal rows of dark spots or double blotches, about 2 scale rows in width, arranged in 7 or 8 vague vertical bands; scales around caudal peduncle 19 to 20 ..

..... Pomadasys kaakan

(Banded grunter or Javelin-fish)



Small white rectangular label with illegible text, possibly a specimen ID or collection date.

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Banded grunter Pomadasys kaakan (Cuvier, 1830)

(Fig. 1.)

DISTINCTIVE CHARACTERS: Dorsal fin with 12 (rarely 13) spines and  $14\frac{1}{2}$  (rarely  $13\frac{1}{2}$  or  $15\frac{1}{2}$ ) soft rays; 43 to 50 pored lateral line scales to base of tail; scales in a row around caudal peduncle 19 to 20; total gillrakers on first gill arch 16 to 19. Colour: Dorsal fins with blackish spots or blotches on interspinous membranes and about 2 rows of spots on interradiial membranes; juveniles with 8 to 12 distinct vertical bars which become interrupted as bands of double spots, or about 4 or more longitudinal rows of double blotches, arranged in vague vertical bars.

SIZE: 80cm, commonly to 50cm.

REMARKS: This is the largest of the Australian grunters, and very large examples lose the interrupted dark bars on the body, becoming plain silvery or golden-silver; the dark spots on the dorsal fin are usually quite distinct. The scientific names Pomadasys hasta (Bloch) and Pomadasys nageb (Ruppell) have been incorrectly applied to this fish throughout the Indo-West Pacific, and Australia (both are junior synonyms of P. argenteus).

The banded grunter is common in estuaries, near the mouths of mangrove creeks, inlets and bays, particularly near deep holes, banks and sand-bars. It feeds largely on prawns, small crabs, molluscs, and small fishes. It takes a variety of baits and



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will strike at lures, putting up a good fight when hooked. The flesh is of good quality and finds a ready market.

Some local names employed are: Spotted javelin-fish, grunter, grunter bream, Queensland trumpeter, trumpeter, spear-spined grunter, banded grunter, silver grunter, silver javelin, croaker.

DISTRIBUTION; Indo-West Pacific from South Africa to China. In Australia from Clarence River, N.S.W., Qld., N.T., and W.A., south to Shark Bay.

Spotted grunter Pomadasys argenteus (Forsskal, 1775)

(Fig. 2.)

DISTINCTIVE CHARACTERS: Dorsal fin with 12 (rarely 13) spines and  $14\frac{1}{2}$  (rarely  $13\frac{1}{2}$  or  $15\frac{1}{2}$ ) soft rays; 45 to 50 pored lateral line scales to base of tail; scales in a row around caudal peduncle 21 to 22; total gillrakers on first gill arch 15 to 19. Colour: Dorsal fins with blackish spots or blotches on interspinous membranes and about 2 rows of spots on interradiial membranes; juveniles with wavy longitudinal dark lines formed largely of contiguous spots which gradually form the adult pattern of a dark spot on the scales of the back and upper sides; anal and ventral fins yellowish.

SIZE: 50cm, commonly to 40cm.

REMARKS: This fish has been incorrectly identified as Pomadasys "opercularis" a junior synonym of P. commersoni from the western Indian Ocean which has  $9\frac{1}{2}$  anal rays instead of the usual  $7\frac{1}{2}$  anal rays of P. argenteus.

In northern Australian waters this fish is common in estuaries, mangrove creeks, sheltered bays and inlets; it may penetrate into freshwater for brief periods.

The spotted grunter is a very popular angling fish taking a variety of baits including prawns, crabs, molluscs and live fish. It is netted commercially and taken in fish traps. The flesh is of excellent quality and the fish

is marketed locally.

DISTRIBUTION: Indo-West Pacific region from the Red Sea to China and Japan. In Australia from Clarence River, N.S.W., Qld., N.T., and northern W.A. to Exmouth Gulf.

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Large headed grunter Pomadasys auritus (Cuvier, 1830)

(Fig. 3 )

DISTINCTIVE CHARACTERS: Dorsal fin with 12 spines and  $14\frac{1}{2}$  soft rays; 43 pored lateral line scales to base of tail; scales in a row around caudal peduncle 16. Head large, the gill cover and angle of preoperculum lengthened as convex rounded lobes, the gill cover extending posteriorly to about one-third to one-half of the pectoral fin, its length about half that of the head. Colour: Dorsal fins with well defined blackish spots on interspinous membranes; adults with a blackish spot on the tip of each scale on the back and upper sides.

SIZE: 52cm, none captured less than 43cm.

REMARKS: This species is exceedingly rare and is known from one specimen found floating "half-dead" in Newcastle harbour, early in July, 1948, now preserved in the Australian Museum, Sydney. Other specimens have been found in Thailand, Malaysia, and Singapore. Additional specimens are required for study.

Silver grunter Pomadasys trifasciatus Fowler, 1937

(Fig. 4 )

DISTINCTIVE CHARACTERS: Dorsal fin with 12 to 13 (rarely 13) spines and  $12\frac{1}{2}$  to  $13\frac{1}{2}$  soft rays; 43 to 50 pored lateral line scales to base of tail; scales in a row around caudal peduncle 21 to 24 (usually 22); total gillrakers on first gill arch 22 to 24. Colour: Dorsal fins without dark spots or black blotches; juveniles with three longitudinal dark bands, the middle one wide, becoming faded or absent with growth; a distinct black-brown spot on gill cover.

SIZE: 12cm, commonly to 8cm.

REMARKS: This small grunter has been confused with the widely distributed Pomadasys argyreus but can be distinguished in the field by its black gut (alimentary canal) which is a pale sandy colour in P. argyreus, and the larger eye. P. argyreus is common in northern Papua New Guinea but not recorded from Australia.

The silver grunter or three banded grunter is abundant in estuaries, open bays and coastal prawn trawling grounds in Queensland, and Northern Territory. It is also found in India, Indonesia, Thailand, and the Philippine Islands. On occasions large catches may be trawled.

DISTRIBUTION: In northern Australian waters from Bowen, Qld., to north-western W.A.

Blotched grunter Pomadasys maculatus (Bloch, 1797)

(Fig. 5)

**DISTINCTIVE CHARACTERS:** Dorsal fin with 12 spines and 14½ (rarely 13½) soft rays; 48 to 54 pored lateral line scales to base of tail; scales in a row around caudal peduncle 22 to 25 (usually 22); total gillrakers on first gill arch 17 to 22 (usually 18). Colour: Dorsal fin with a large black blotch on the spiny part; juveniles and adults with large blackish blotches in the form of incomplete cross-bars and spots on upper sides, the one behind the head and before the dorsal fin most conspicuous.

**SIZE:** 25cm, commonly to 12cm.

**REMARKS:** This small grunter is easily recognized by the large black blotches on the body. It is commonly taken, sometimes in large quantities, by prawn trawlers, particularly in northern bays and gulfs in association with banana or tiger prawns. Juveniles are abundant in estuaries and move out onto open silty substrates or muddy areas. Sexual maturity is attained at about 12 to 13cm. This species feeds on small molluscs, crustacea, and occasionally fishes; the gut frequently contains broken shell and silt. This fish is marketed throughout its range but is not commercially important in Australia due to its small size.

**DISTRIBUTION:** Indo-West Pacific from Natal to China and Taiwan. In Australia from Moreton Bay, Qld., northwards, N.T., and W.A., southwards to Exmouth Gulf.