

FOUR NEW RECORDS OF SURGEONFISHES (PERCIFORMES: ACANTHURIDAE) FROM THE GREAT BARRIER REEF

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Four species of surgeonfishes are recorded from the outer Great Barrier Reef for the first time. They are: *Acanthurus maculiceps* (Ahl), *Naso minor* (Smith), *Naso thynnoides* (Valenciennes) and *Ctenochaetus tominiensis* Randall. □ *Great Barrier Reef, surgeonfishes.*

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Four species of surgeonfishes new to Australia were found along the outer shelf reefs of the northern Great Barrier Reef (GBR): *Acanthurus maculiceps* (Ahl), *Naso minor* (Smith), *N. thynnoides* (Valenciennes), and *Ctenochaetus tominiensis* Randall. All except *N. minor* occur around New Guinea (Allen & Swainston 1993; Randall 1994). Prior to this report, 36 species of surgeonfishes were recorded from the GBR and Coral Sea (Randall et al. 1990). The Acanthuridae (surgeonfishes) consists of 73 species, mostly from the Indo-Pacific region. The most distinctive feature of the family is the sharp spine or spines on the caudal peduncle.

SYSTEMATICS

Material is housed in the Australian Museum (AMS), and Bernice P. Bishop Museum (BPBM).

Family ACANTHURIDAE

Acanthurus maculiceps (Ahl, 1923) (Fig. 1)

Hepatus maculiceps Ahl, 1923:36. (type locality, Talassia, New Britain).

MATERIAL. AMSI37145-001, 213mm SL, No Name Reef (Reef 14-139), 14°38'S, 145°38'E, dense coral growth near reef crest, adjacent to the reef pass, 4m, spear, K.D. Clements, 16 November 1995.

DIAGNOSIS. Dorsal rays IX,25; anal rays III, 23; pectoral rays 17 (including rudimentary uppermost ray); anterior gill rakers 20; posterior gill rakers 22; 14 upper and 18 lower teeth; body moderately deep for genus, depth 2.1 in SL, compressed, width 2.95 in depth; head length 3.3 in SL; dorsal profile of head strongly convex; snout length 4.3 in SL; orbit diameter 4.8 in head

length; caudal peduncle depth 8.45 in SL; ninth dorsal spine longest, 6.35 in SL; caudal fin lunate, the caudal concavity 5.3 in SL; caudal spine 3.0 in head length. Stomach thickwalled. Colour in alcohol: dark brown with a horizontal black band (narrowing at each end) at upper end of gill opening from behind eye to 1.5 orbit diameters posterior to gill opening; a narrow black margin at edge of caudal spine socket; numerous faint small pale spots on head; a transverse whitish band on chin; dorsal fin with 9 narrow pale stripes alternating with dark brown, and a narrow black margin; anal, caudal, and pelvic fins dark brown; pectoral fins dark brown, with a pale spot distally on upper half.

REMARKS. This species is known from Christmas Island (Indian Ocean), Ryukyu, Philippines, Indonesia, Palau, Marianas, Marshall Islands, Kiribati, Tuvalu, Samoa, Line Islands, and Caroline Islands (Randall, 1956; Myers, 1989; Jones et al., 1993). It is distinguished from other surgeonfish in colour by a combination of the white caudal spine with a black margin, the patch of yellow on the distal third of the pectoral fin, the black lozenge-shaped mark extending backwards from the upper edge of the operculum, numerous small pale yellow spots on the head, and an irregular white bar at the base of the caudal fin.

Ctenochaetus tominiensis Randall, 1955 (Fig. 2)

Ctenochaetus tominiensis Randall, 1955: 163. (type locality, Gulf of Tomini, Sulawesi).

MATERIAL. BPBM14726, 64.5mm SL, NW side of horseshoe-shaped reef at S boundary of Pandora entrance, 11°30'S, 144°00'E, rich coral bottom, 14m, multiprong spear, R.C. Steene, 20 November 1972.

DIAGNOSIS. Dorsal rays VIII,26; anal rays

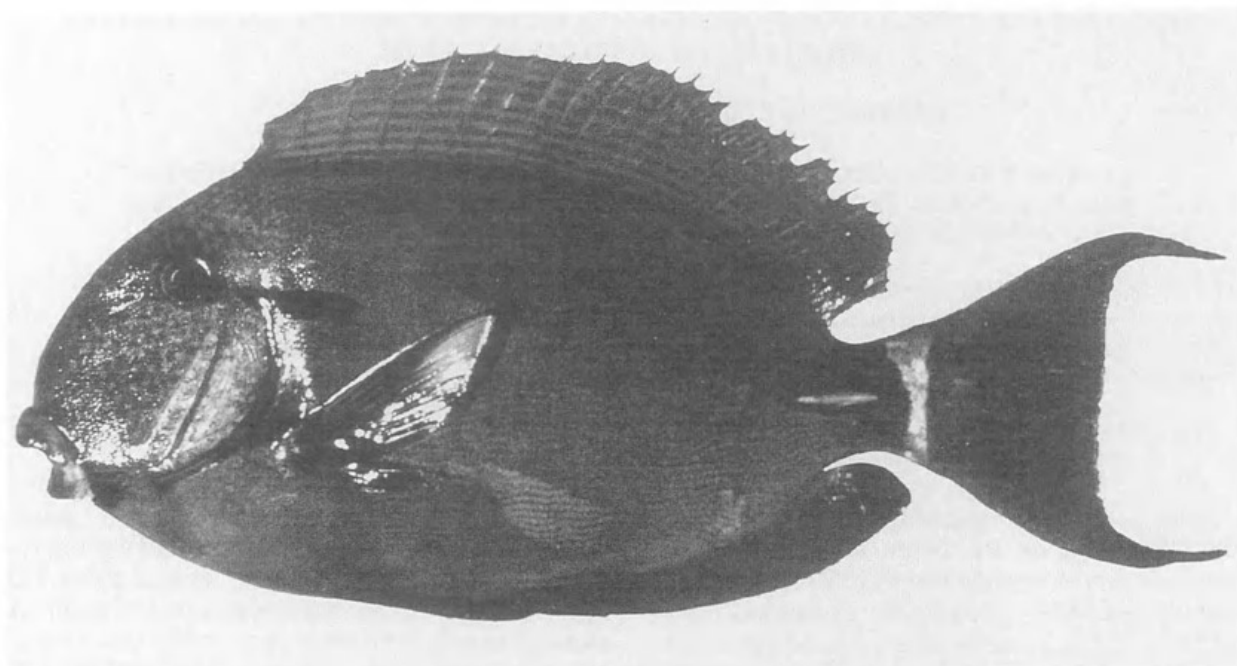


FIG. 1. *Acanthurus maculiceps* (Ahl, 1923), AMSI37145-001, No Name Reef, Great Barrier Reef.

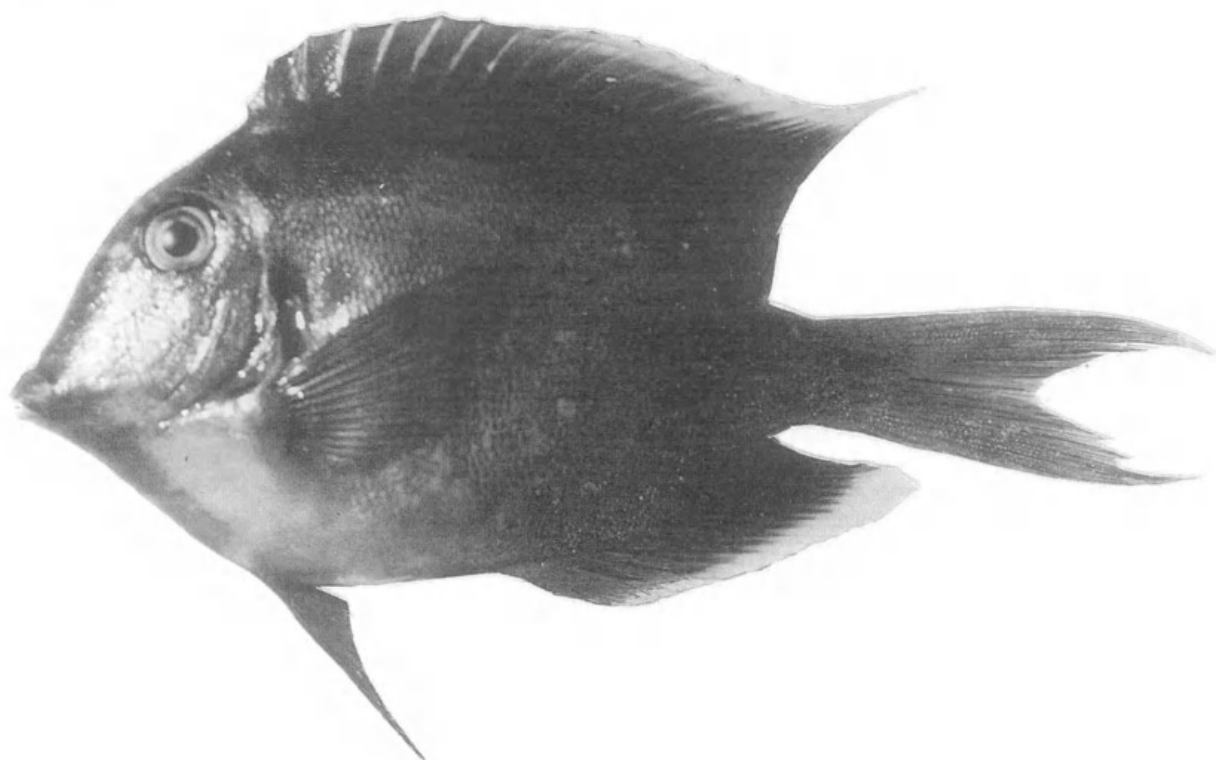


FIG. 2. *Ctenochaetus tominiensis* Randall, 1955, BPBM14726, Pandora Reef, Great Barrier Reef.

III, 24; pectoral rays 16 (including short splint-like upper ray); anterior gill rakers 20; posterior gill rakers 21; teeth slender and flexible with

expanded incurved tips, 25 in upper jaw and 28 in lower; distal half of expanded part of upper teeth smooth-edged, lower half with 3 denticula-

tions; expanded outer part of lower teeth with 3 denticulations (including the tip, much the broadest); edges of lips strongly papillate; body very deep, depth 1.75 in SL, strongly compressed, width 3.1 in depth; head length 3.0 in SL; snout length 4.2 in SL; orbit diameter 5.4 in head length; caudal peduncle depth 9.1 in SL; eighth dorsal spine longest, 5.5 in head length; caudal fin lunate, the caudal concavity 4.2 in SL. Colour in alcohol: head, body and paired fins brown; caudal fin light brown (may be whitish in life); spinous portion of dorsal fin brown, with faint curving oblique pale bands alternating with brown bands, becoming horizontal in outer posterior part of soft portion of fin; soft portion of dorsal and anal fins brown with a broad distal pale zone (bright orange in life) except for a narrow black margin; a black spot at rear base of dorsal fin and a less distinct blackish one at rear base of anal fin; anterior nostril white.

REMARKS. This species is known from Indonesia, Philippines, PNG, and the Solomon Islands. The dorsal and anal soft-ray counts of the GBR specimen are higher than the recorded range (Randall, 1955, table 1), but fin-ray counts of BPBM material are equally high. *C. tominiensis* is distinguished within the genus by the broad orange borders of the soft dorsal and anal fins.

***Naso (Axinurus) minor* (Smith, 1966)
(Fig.3)**

Axinurus minor Smith, 1966:638 (type locality, Pinda Reef, Mozambique).

DIAGNOSIS. See Randall, 1994.

REMARKS. Underwater photographs of this species were taken on the outer reef slope at the north end of No Name Reef (Reef 14-139:

14°38'S, 145°38'E) in 20-30m on 18/1/95, and at the south end of the same reef in 25-30m on 23/1/1995 (Fig. 3). Schools of *N. minor* were observed at the N end of Hick's Reef (Reef 14-086: 14°26'S, 145°28'E), in 15-25m on 24/1/95.

These observations involved schools of 15-20 individuals moving rapidly over the shelf at the base of the escarpment. The schools appeared to move up onto this shelf from deeper water. *N. minor* is common on the seaward side of outer shelf reefs in the northern section of the Great Barrier Reef. The lack of any previous Australian record is probably due to the limited diving on these deepslope habitats, and because *Naso minor* is difficult to approach underwater. We could not collect specimens by spear and our photographs could only be taken from a distance. This species is known from the Philippines, Indonesia, Reunion, and Mozambique (Randall, 1994).

Naso (Axinurus) has a single fixed keel-like spine on each side of the caudal peduncle (Randall, 1994). Other species of *Naso* have two fixed caudal spines. *Naso minor* may be distinguished within the genus by the combination of a single black caudal spine and a bright yellow caudal fin and by the male frequently adopting a distinct countershading pattern (Randall, 1994, pl. 2B).

***Naso thynnoides* (Valenciennes, 1835)
(Fig.4)**

Axinurus thynnoides Cuvier, 1829: 225 (nomen nudum). Valenciennes in Cuvier and Valenciennes, 1835:299, pl. 293 (type locality, Dorey Harbour, New Guinea).

DIAGNOSIS. See Randall, 1994.

REMARKS. Underwater photographs of this species were taken at the north end of Hick's Reef

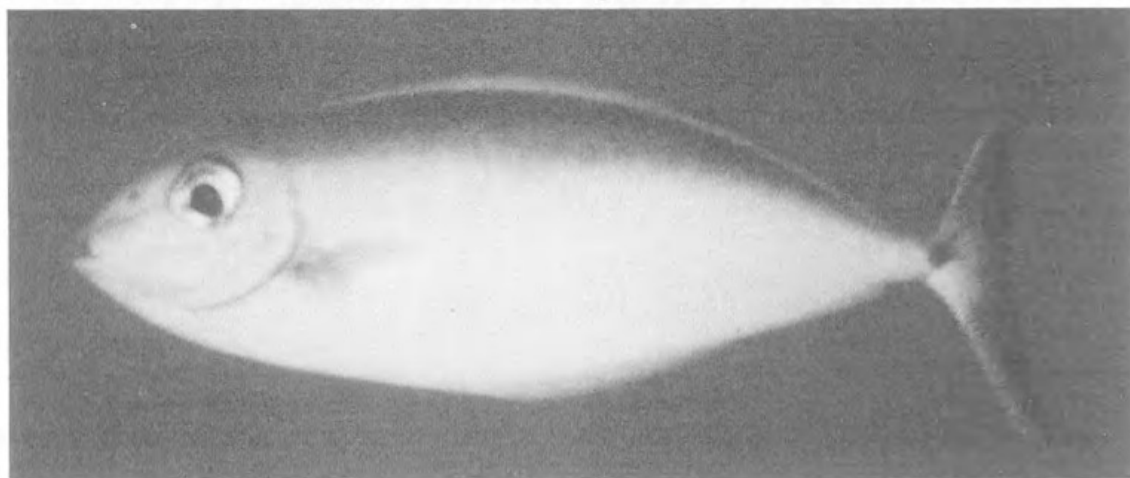


FIG. 3. Underwater photograph of *Naso minor* (Smith, 1966), No Name Reef, Great Barrier Reef.

(Reef 14-086: 14°26'S, 145°28'E) in 15-25m on 24/1/95 and 25/1/1995. On both occasions a group of approximately 6 individuals were moving rapidly over the slope. On the first occasion these fish were schooling with a much larger group of *N. minor*. Attempts to collect specimens by spear were unsuccessful. The Nend of Hick's Reef is unusual for outer reefs in the vicinity as the shelf between the base of the escarpment and the outer dropoff is relatively shallow (cf. 20-35 m in other places). We have not seen *N. thynnoides* elsewhere on the GBR.

N. thynnoides may be distinguished within the genus by a single caudal spine and a series of narrow, dark bars on the body (Randall 1994). The caudal fin in the specimens of *N. thynnoides* in our photos is grey, not distinctively yellow as in *N. minor* or blue as in *N. caeruleacauda* (Randall 1994). Colour of *N. thynnoides* photographed at Hick's Reef is very similar to Randall, 1994, pl. 1A. It is known from the western Indian Ocean, Philippines, Amami-Oshima Islands, Ryukyu Islands, Indonesia, Solomon Islands, Tuvalu, Caroline Islands, and Maldive Islands (Jones et al., 1991; Randall, 1994).

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LITERATURE CITED

- AHL, E. 1923. Ichthyologische Mitteilungen 3. Ueber eine neue Art der Gattung Hepatus. Zoologisches Museum Berlin, Mitteilung, 11: 36-37.
- ALLEN, G.R. & SWAINSTON, R. 1993. Reef fishes of New Guinea. (Christensen Research Institute: Madang).
- CUVIER, G. 1829. Le règne animal distribué d'après son organisation, pour servir de base à l'histoire naturelle des animaux et d'introduction à l'anatomie comparée, ed. 2, 2. (Déterville: Paris).
- CUVIER, G. & VALENCIENNES, M.A. 1835. Histoire naturelle des poissons. 10. (Chez F.G. Levrault: Paris).
- JONES, G.P., KALY, U.L. & CLEMENTS, K.D. 1991. Preliminary records of the coral reef fishes of Tuvalu. South Pacific Journal of Natural Science 11: 40-57.
- KUITER, R.H. 1992. Tropical reef fishes of the Western Pacific: Indonesia and adjacent waters. (Penerbit PT Gramedia Pustaka Utama: Jakarta).
- MYERS, R.F. 1989. Micronesian reef fishes. (Coral Graphics: Guam).
- RANDALL, J.E. 1955. A revision of the surgeon fish genus *Ctenochaetus*, Family Acanthuridae, with descriptions of five new species. Zoologica 40: 149-168.
1956. A revision of the surgeon fish genus *Acanthurus*. Pacific Science 10: 159-235.
1994. Unicornfishes of the subgenus *Axinurus* (Perciformes: Acanthuridae: *Naso*), with description of a new species. Copeia 1994: 116-124.
- RANDALL, J.E., ALLEN, G.R. & STEENE, R.C. 1990. Fishes of the Great Barrier Reef and Coral Sea. (Crawford House Press: Bathurst).
- SMITH, J.L.B. 1966. Fishes of the subfamily Nasinae with a synopsis of the Prionurinae. Ichthyological Bulletin of the Department of Ichthyology, Rhodes University, Grahamstown 32: 634-682.

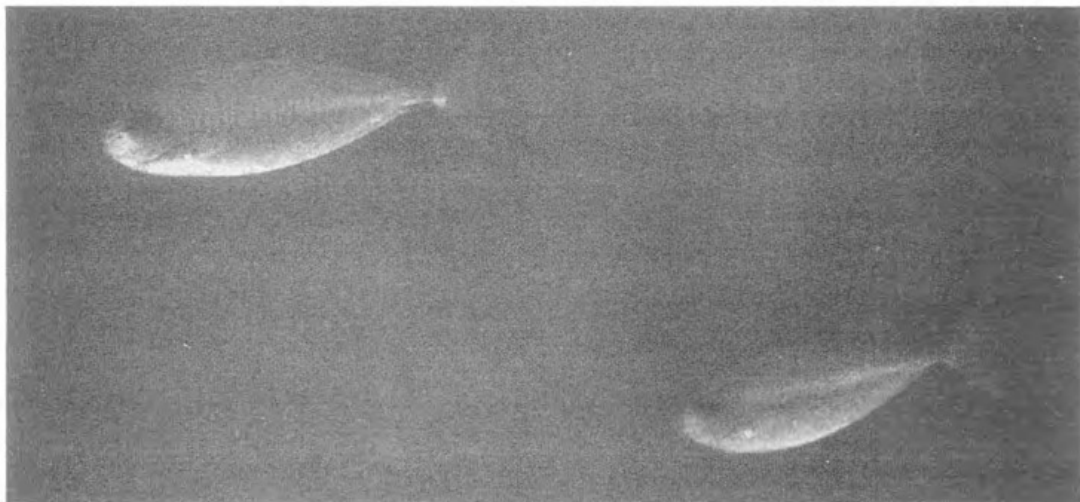


FIG. 4. Underwater photograph of *Naso thynnoides* (Valenciennes, 1835), Hick's Reef, Great Barrier Reef.



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