Memoirs of the Museum of Victoria 48(1): 17-23 (1987)
https://doi.org/10.24199/j.mmv.1987.48.06

31 October 1987
ISSN 0814-1827

NEW AUSTRALIAN FISHES. PART 6. NEW SPECIES OF *LEPIDOTRIGLA* (TRIGLIDAE), *CHOERODON* (LABRIDAE) AND *ZEBRIAS* (SOLEIDAE)

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Abstract

Gomon, M.F., 1987. New Australian fishes. Part 6. New species of *Lepidotrigla* (Triglidae), *Choerodon* (Labridae) and *Zebrias* (Soleidiae). *Mem. Mus. Vict.* 48: 17-23.

The following new species are described: *Lepidotrigla spinosa*, confined to the southern coast of Australia, *Choerodon sugillatum*, restricted to northern Australia, and *Zebrias penescalaris*, distributed off the central and western portions of Australia's south coast. A replacement name, *Zebrias scalaris*, is proposed for *Zebrias fasciatus* (Macleay), a junior homonym of *Zebrias fasciatus* (Basilewsky). The former is confined to eastern and south-eastern Australia and is closely related to the allopatric *Zebrias penescalaris*.

Introduction

Studies on the faunal composition of temperate Australian waters have revealed numerous taxonomic problems associated with fishes occurring there. Not the least of these is the discovery of a number of undescribed taxa. This paper provides names for two species of the families Triglidae and Soleidae and rectifies a problem of homonymy existing in a third, Soleidae. In addition, a new species of labrid is described from northern Australia. All of these species have been treated or soon will be treated in popular books. Methodology for accounts of species in the families Triglidae and Soleidae is primarily that of Hubbs and Lagler (1947). The labrid account follows methods given in Gomon (1974). Type specimens are lodged in the Australian Museum, Sydney (AMS), CSIRO, Division of Fisheries Research, Hobart (CSIRO), Museum of Victoria, Melbourne (NMV), South Australian Museum, Adelaide (SAMA), National Museum of Natural History, Washington, D.C. (USNM), and Western Australian Museum, Perth (WAM).

Triglidae

Lepidotrigla Günther

Lepidotrigla Günther, 1860: 196.

Type species. Trigla aspera Cuvier, in Cuvier and Valenciennes, 1829 (subsequent designation by Jordan, 1919: 296).

Discussion. Lepidotrigla, as currently recognised, is by far the largest genus in the family. Richards and Saksena (1977) pointed out that further studies of the family on a world-wide basis may redefine genera, affecting species currently assigned to *Lepidotrigla*. Until this has been done, nomenclatural stability is best maintained by retaining this catch-all genus.

Recent authors, including Gloerfelt-Tarp and Kailola (1984) and Sainsbury et al. (1985) have treated several tropical species referred to this genus as having uncertain status. Although these species do not appear to represent forms described from Australian waters, it is premature to recognise them as new without comparing them with species described from other tropical Indo-Pacific waters. Because of the magnitude of this task, such comparisons have not yet been completed. On the other hand, comparison of subtropical and temperate Australian species with the few forms occurring in similar conditions elsewhere leaves little doubt that they are endemics. An ongoing study aimed at differentiating all fish species occurring in waters of Australia's southern coast has revealed the

presence of the following undescribed species.

Lepidotrigla spinosa sp. nov.

Figure 1

Material examined. Holotype: Western Australia, Albany (35°00'S, 117°52'E), 38-45 m, P.R. Last, 5 Mar 1986, FV "Nōrnalup", NMV A3728 (83.5 mm SL).

Paratypes: Western Australia. Type locality, NMV A3730 (3 specs., 75.6-87.9 mm SL). Western end of Great Australian Bight (32°42'S, 125°48'E), 54 m, S03/81/17, FRV "Soela", 31 Jul 1981, SAMA A791 (5 specs., 95.1-103 mm SL).

South Australia. South of Head-of-Bight (32°16.3'S, 131°23.6'E), 60-61 m, S05/81/56, FRV "Soela", 7 Dec 1981, NMV A2893 (87.1 mm SL). Same area (32°15.4'S, 131°22'E), 62 m, S05/81/54, FRV "Soela", 7 Dec 1981, NMV A2860 (87.1 mm SL); (32°13.4'S, 131 22.2'E), 60 m, S05/81/53, FRV "Soela", 7 Dec 1981, NMV A2877 (83.3 mm SL). Anxious Bay, (33°28'S, 134°48'E), P.C. Haffey, 25 Feb 1981, SAMA A101 (96.1 mm SL). 15.4-18.8 km (10.5-8.6 miles) off Emu Bay, Kangaroo Island, (35°25'S, 137°35'E), I. Brown, April-May 1981, SAMA A1121 (4 specs., 94.2-99.5 mm SL).

Description. Dorsal-fin rays IX, 14-15 (IX, 14 in holotype). Anal-fin rays 14-15 (14 in holotype). Lateral-line scales 51-57 (57 in holotype). Profile of snout in front of eyes nearly straight. Interorbital moderately depressed. Shallow but distinct transverse groove above and behind each eye, grooves not meeting on dorsal midline of head. Snout rostrum in most specimens nearly truncate when viewed from above, but with slight medial notch, each side with several moderately small spines, none usually markedly larger than others. Scales small, ctenoid, firmly attached, covering all of body except chest and anterior portion of belly. Lateral-line scales slightly enlarged, each with 1 or more prominent spines; spines best developed on posterior lateral-line scales. Pectoral-fin tip reaching to above base of third or fourth anal-fin ray, distinctly short of pelvic-fin tip, except in very small specimens. Reaches a total length of at least 125 mm.

Reddish above, white below. More or less prominent black spot on dorsal fin between fourth and seventh spines. Dorsal surface of pectoral fin dark between second and sixth or seventh rays, leading edge of fin pale except for dusky blotch distally, distal edge narrowly pale, inner margin between last 3 or 4 rays pale.

Distribution. Off southern Australia between Kangaroo Island, South Australia and Albany, Western Australia, at depths of 30-80 m.

Etymology. From the Latin, *spinosa* (thorny), in

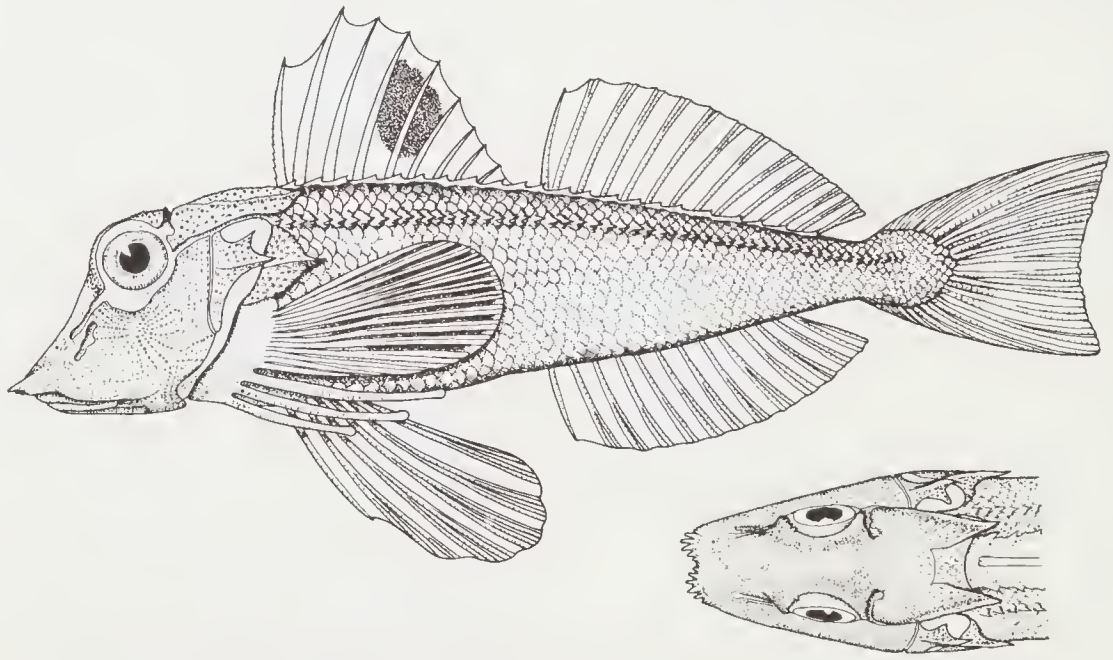

Figure 1. *Lepidotrigla spinosa* sp. nov., paratype, SAMA A101, 96.1 mm SL; insert shows dorsal view of head.

reference to the prominent spine bearing lateral-line scales characteristic of this species.

Remarks. This species is remarkably close to *Lepidotrigla umbrosa* Ogilby, 1910, which is confined to northern New South Wales and southern Queensland. The two share similar ranges of meristic values, although lateral-line scale counts in *L. spinosa* appear to be slightly lower than in *L. umbrosa*. The former may be distinguished from the latter by its rather truncate rostrum in dorsal view, the medial notch being very shallow. Rostral spines are usually subequal in this species and somewhat symmetrically arranged around each rostral lobe. *Lepidotrigla umbrosa*, on the other hand, has a deep notch in the rostrum, the rostral lobes often slightly splayed outwards. The latter species usually has a prominent spine at the outer corner of each rostral lobe with spines becoming progressively smaller toward the centre of the rostrum. The pectoral fins also appear to differ between the species, with *L. spinosa* having a slightly shorter fin which reaches only to above the base of the third or fourth anal-fin ray and less pigmentation on the upper surface. The pectoral fin in *L. umbrosa* reaches to above the base of the fifth or sixth anal-fin ray and has a very narrow pale margin along the leading edge, a rather broad pale margin along the distal edge and a narrow pale margin along the inner edge, the last spanning only about two rays.

Both of these species are easily distinguished from sympatric congeners by the following combination of characters: ctenoid scales, spines on lateral-line scales, prominent black spot in the first dorsal fin and distinct rostral spines. They appear to be most closely related to *L. papilio* Cuvier, 1829, of southern Australia, with which they share the first three features.

Labridae

Choerodon Bleeker

Choerodon Bleeker, 1847: 10.

Type species. Labrus macrodontus Lacepède (= *C. anchorago* Bloch) by monotypy.

Discussion. As indicated by Gomon and Allen (1987), prior to this publication two undescribed species of *Choerodon* were known from Australian waters. One is described here.

Choerodon sugillatum sp. nov.

Choerodon sp. 2 Gloerfelt-Tarp & Kailola, 1983: 235, colour figure on opposing page.

Choerodon sp. 2 Sainsbury, Kailola & Leyland, 1984: 260, colour figure on opposing page.

Choerodon sp. Allen, 1985: 2408, fig. 334.

Material examined. Holotype: Queensland, Cape Bedford (15°13.59'-15.00'S, 145°23.36'-27.87'E), 30 m, trawl, FV "Gwendaline May", C.C. Lu, 1 Mar 1983, NMV A3126 (104 mm SL).

Paratypes: Queensland, Lizard Island area (14°40'S, 145°27'S), staff of Australian Museum and Australian Institute of Marine Sciences, 8 Feb 1979, AMS I.20751-006 (8 specs., 59.2-97.8 mm SL), USNM 280628 (4 specs., 64.2-84.0 mm SL). Lizard Island area, Mrs Watsons Bay (14°40'S, 145°27'E), Australian Museum party, Nov, 1975, AMS I.19450-037 (3 specs., 36.2-66.5 mm SL). Cape Tribulation (16°09.46'-12.17'S, 145 33.23'-36.06'E), 30 m, trawl, FV "Gwendaline May", C.C. Lu, 1 Mar 1983, NMV A3137 (97.2 mm SL). Cape York, staff of Australian Museum and Australian Institute of Marine Sciences, 18 Feb 1979, AMS I.20771-066 (2 specs., 87.8-104 mm SL). Gulf of Carpentaria (12°37'S, 140°57'E), CSIRO, 19 Apr 1964, 116 mm SL, AMS I.15557-206 (116 mm SL). 180 km west of Cape York (10°50.23'-48.01'S, 140°55.11'-55.68'E), 44 m, trawl, FV "Gwendaline May", C.C. Lu, 26 Feb 1983, NMV A3130 (3 specs., 81.2-99.2 mm SL).

Western Australia, North-west Shelf (20°46'-48'S, 115°59'-116°00'E), 19-22 m, FRV "Soela", CSIRO, 1 Dec 1979, CSIRO H656-01 (141 mm SL). Same area (20°00'-03'S, 115°57'-58'E), 78-80 m, FRV "Soela", CSIRO, 2 Dec 1979, CSIRO H657-01 (35.3 mm SL), CSIRO H657-02 (50.6 mm SL). Same area (19°45'-47'S, 116°33'-35'E), 60-64 m, FRV "Soela", CSIRO, 4 Dec 1979, CSIRO H658-01 (96.1 mm SL). Monte Bello Islands (20°25'S, 115°30'E), Australian Government, Apr 1975, WAM P25354-023 (6 specs., 133-149 mm SL).

Description. Dorsal-fin rays XII, 8; anal-fin rays III, 10; pectoral-fin rays ii, 13-14 (holotype with 13; 13 in 55 of 58 fins examined); lateral-line scales 27 + 2; predorsal scales 5-7 (6 in holotype; modally 6); scales above lateral line 3-3 1/2 (3 in holotype). Body and head shallow, becoming moderately deep in large adults, body depth 26.6-37.1% (31.0% in holotype) % SL. Eye large. Predorsal scales reaching forward to above midpoint between hind margin of eye and hind edge of preopercle. Cheek scales reaching forward to below anterior extent of orbit; moderately narrow naked margin along free edge of preopercle; subopercle with 5-9 uniserial scales reaching forward to below centre of eye. Lateral-line scales usually without accessory branches associated with sensory pore. Upper jaw with two pairs of prominent ventrally directed canines anteriorly,

anteriormost about twice the size of second; upper jaw without posterior canines. Lower jaw with two pairs of prominent anterior canines, anteriormost much smaller than second; second pair strongly curved laterally. Caudal fin broadly wedge-shaped, upper and lower corners each produced into slight lobe. Pectoral fin rather pointed dorsoposteriorly, with lower ray produced, giving hind margin of fin lunate appearance. Reaches a length of at least 175 mm TL.

Juveniles pale with narrow dusky midlateral stripe on sides extending from opercular margin onto caudal fin; small triangular dark mark extending from lateral stripe above pectoral-fin base toward lateral line.

Initial and terminal phase individuals pale with hazy angled dark slash on side about midway between pectoral-fin base and dorsal profile of side; small dark spot at upper end of pectoral-fin base and short narrow dark mark near centre of hind margin of caudal-fin.

Life colours of juveniles olivaceous with brownish blotches above, white below, areas separated by brown stripe just above lateral midline; lateral stripe with vertical black mark anteriorly bordered with blue positioned above and slightly behind pectoral-fin base; stripe edged with blue on head, two additional blue lines directed forward from eye across snout. Fins transparent except for two olivaceous stripes in dorsal fin and two blue stripes in anal fin; pectoral-fin base with broad blue band.

Initial phase coloration similar to that of juveniles except dorsal coloration uniformly olivaceous, scale centres blue, at least posteriorly, yellow streaks between scale rows on caudal peduncle, brown lateral stripe narrower on sides, blue margin along black mark on side and blue band on pectoral-fin base broad and intense, latter thinly outlined with yellow, blue lines on head similarly bordered with yellow, two additional lines across snout and forehead, short blue line directed posteriorly from both top and bottom of eye, lower line turning ventrally anteroventral to eye and directed onto chin, lower lip blue, and blue stripe directed horizontally from lower jaw to hind edge of preopercle. Dorsal and anal fins blue, dorsal fin with thin yellow longitudinal lines proximally and distally, anal fin with thin yellow longitudinal lines proximally and centrally. Caudal fin blue with posteriorly converging yellow lines, lines edged with black posteriorly at centre of rear margin of fin.

Terminal phase coloration apparently as in initial phase individuals, with lateral brown stripe on sides narrower.

Distribution. Confined to northern Australia, extending at least from Cape Tribulation, Queensland to the Monte Bello Islands, Western Australia.

Etymology. From the Latin *sugillatum* (black and blue spot), in reference to the characteristic marking on the side of this species.

Remarks. Choerodon sugillatum is a member of a natural assemblage of at least five species. Representatives of the group are distinguishable from other congeners by their prolonged lower pectoral-fin rays. These species also have a generally shallower and more streamlined body than most other tuskfish and share a dorsal-fin count of XII, 8 with only four other species in the genus. The assemblage, treated as *Pealopesia* Smith, 1953, or *Choerodonoides* Kamohara, 1958, by some authors, is referred to *Choerodon* until further evidence shows otherwise. A revisionary study, is currently underway.

All species in this assemblage have nearly identical meristic values. Differences are primarily in body form and coloration. *Choerodon sugillatum* has the deepest and most compressed body of the complex, at least in terminal phase adults. It differs from all other species most noticeably in having a prominent black and blue, slash-like mark on the upper side above and behind the pectoral-fin base. The only other species of this complex known to occur in Australian waters is that described by Kamohara (1958) as *Choerodonoides japonicus*. The only known specimen of this species from Australian waters was collected off Shark Bay, Western Australia. When compared with *C. sugillatum*, this species has a more slender and robust body. It also has a pearly stripe just above the lateral midline of the sides extending from the base of the caudal fin to the lower side of the eye and curving ventrally to the upper jaw. The species is also known from Japan and Taiwan.

Soleidae

Zebrias Jordan & Snyder

Zebrias Jordan & Snyder, 1900: 380.

Type species. Solea zebrina Temminck & Schlegel, 1850 (=*Pleuronectes zebra* Bloch, 1788) by original designation.

Discussion. Species belonging to the *Zebrias* group (Chabanaud, 1934), combine to form a distinctive, monophyletic assemblage which has been variously split into a number of genera and subgenera. Although generic limits have continued to change due to the subjectivity of authors treating these species (e.g., McCulloch, 1916; Chabanaud, 1930), there appears to be a consensus that *Solea fasciata* Basilewsky, 1855, and *Synaptura fasciata* Macleay, 1882, represent closely related, but distinct species that are referable to one genus regardless of criteria used. If generic lines were drawn to place these species in separate genera, each of the resultant groupings would contain at the most two species. Assuming that this action is not taken the latter species name is a junior homonym of the former and as no other names have been proposed for this species, a replacement name is required. The following treatment presents a name and diagnosis for this taxon. In addition, a description of a closely related but previously unrecognised species restricted to central and western portions of Australia's southern coast is provided. All three of these species are referred to the genus *Zebrias*. In the following descriptions, lateral-line scales are counted from directly above the gill opening to the posterior edge of the hypural bones.

Zebrias scalaris nom. nov.

Synaptura fasciata Macleay, 1882: 14 (type locality-Port Jackson, New South Wales).–McCulloch, 1916: 61, pl. V111, fig. 2.

Brachirus fasciatus.–Norman, 1926: 295.

Zebrias fasciatus.–Chabanaud, 1930: 16-17.

Haplozebrias fasciatus.–Chabanaud, 1943: 292.

Material examined. Queensland. Off Moreton Island, NMV A2787 (117 mm SL).

New South Wales. Botany Bay, AMS I.23455-001 (140 mm SL). Jervis Bay, AMS I.16892-001 (160 mm SL), AMS I.19392-005 (148 mm SL).

Tasmania. South-southeast of Flinders Island, NMV A1564 (133 mm SL).

Victoria. Bass Strait, off Lake Tyers, NMV A3203 (163 mm SL), NMV A3244 (47.9 mm SL); off Lakes Entrance, NMV A3750 (123 mm SL); off Cape Woolamai, NMV A3751 (103 mm SL).

Diagnosis. Dorsal-fin rays 75-82 (mean 78.4, 8 of 9 specimens with 76-82); anal-fin rays 60-69 (mean 65.6); pectoral-fin rays 6-7; lateral-line scales 74-86 (mean 82, 8 of 9 specimens with 79-86). Eyes separated by narrow scaly, interorbital space. Pectoral fins rudimentary, contiguous with opercular membrane to form short tubular structure, of similar size and form; length of rays less than half eye diameter. Reaches a length of 200 mm.

Pale with 16-24 parallel darker bands crossing body and base of caudal fin, bands of equal breadth or slightly narrower than interspaces and usually distinct, though not sharply demarcated from interspaces.

Distribution. South-eastern Australia from Morton Bay, Queensland to Flinders Island, Tasmania and Cape Woolamai, Victoria.

Etymology. From the Latin *scalaris* (of a ladder), in reference to the rung-like bands traversing the body in this species.

Remarks. This species is easily separable from all other members of the genus, except for the representative treated below, on the basis of colour pattern. It is close to, but clearly distinct from *Zebrias fasciatus* (Basilewsky) as pointed out by Ochiai (1963). For a more detailed account and comparison with other Australian congeners (treated as *Synaptura*) see McCulloch (1916).

Variablility among examined specimens of this species does not appear to relate to collection localities and thus can not be attributed to environmental factors.

Zebrias penescalaris sp. nov.

Material examined. Holotype: South Australia, Anxious Bay, (33°28′S, 134°48′E), 55 m (30 fms), T. Holder, 25 February 1981, SAMA A96 (113 mm SL).

Paratypes: South Australia, Investigator Strait (35°20′S, 137°50′E), 20 m, over mud and sponges, prawn trawl, H. Larson and D. Blake, 14 Mar 1978, AMS I.20194-029 (7 specs., 106-123 mm SL). 9.7 km (6 miles) off Venus Bay, (33°15′S, 134°30′E), 33-46 m (18-25 fms), T. Olsen, Jun 1982, SAMA A1662 (118 mm SL). 6.9 km (4.3 miles) south-east of Evans Island (32°25′S, 133°30′E), 43 m, T. Olsen, SAMA A6554 (2 specs., 94.3-111 mm SL). 4.8 km (3 miles) south of Evans Is-

land, 40 m (22 fms), K. and T. Olsen, 14 Apr 1982, SAMA A1085 (4 specs., 98.0-110 mm SL). South-east of Evans Island, near Ceduna, T. Olsen, c. 1 Jun 1982, SAMA A1697 (105 mm SL).

Western Australia. Off Albany (35°00'S, 117 52'E), 38-45 m, trawled, FV "Nornalup", P.R. Last, 5 Mar 1986, CSIRO H572-03 (115 mm SL).

Description. Dorsal-fin rays 70-80 (mean 73.4, 16 of 17 with 70-76; holotype with 75); anal-fin rays 60-67 (mean 64.1; holotype with 67); pectoral-fin rays 6-7 (holotype with 6); lateral-line scales 67-76 (mean 71.9; 72 in holotype). Eyes separated by narrow scaly, interorbital space. Pectoral-fins rudimentary, contiguous with opercular membrane to form short tubular structure, of similar size and form; length of rays less than half eye diameter. Reaches a length of 150 mm.

Eyed side dusky with 16-22 (approximately 20 in holotype) faintly darker parallel bands crossing body and base of caudal fin, bands of equal breadth or slightly narrower than interspaces and difficult to distinguish from interspaces; blind side pale. Dorsal and anal fins dusky to dark with narrow pale margin on both sides.

Distribution. Southern coast of Australia from at least Kangaroo Island, South Australia to Albany, Western Australia.

Etymology. From the Latin *pene* (almost or near) and *scalaris* (of a ladder), in reference to the close relationship of this species to the previously treated congener.

Remarks. This species is very similar to *Zebrias scalaris,* the two undoubtedly having arisen from a recent common ancestor. Both species are separable from other members of the genus, as defined by Chabanaud (1934), in having the following combination of characters: eyes that are adjacent one another but with a scaly interorbital space, rudimentary pectoral fins that are joined to the respective opercular membranes to form a short tube on each side that is shorter than half the diameter of the eye, all rays in the dorsal and anal fins unbranched and numerous ill-defined parallel bands crossing the body on the eyed side. The new species is separable from *Z. scalaris* in having fewer lateral-line scales (67-76, versus 79-86 in the latter; one specimen of the latter with 74), generally a lower number of dorsal-fin rays (70-76, versus 75-82 in the latter; one specimen of the former with 80), and less definition in the body banding.

The possibility that clinal variation may be responsible for the observed differences between *Z. scalaris* and *Z. penescalaris* has been ruled out as there were no observed shifts in morphometric values associated with specimen distribution in either population. Although there are some variations in the colour patterns present in both species, the pattern is much more obscure in the latter. This difference does not appear to coincide with local conditions.

Acknowledgements

Travel to the South Australian Museum and the Australian Museum where much of this work was undertaken was made possible by the Marine Sciences and Technologies Research Grant Scheme, grant number 81/0270. I am grateful to John Glover of the former institution and John Paxton and Douglass Hoese of the latter for facilitating the examination of specimens. Rudie H. Kuiter kindly loaned photographic slides which aided in colour descriptions. Thanks go to Graham Milledge for preparing the illustration.

References

Allen, G.R. 1985. Fishes of Western Australia. Pp. 2207-2534 in: Burgess, W. and Axelrod, H.R. (eds.), *Pacific Marine Fishes.* Book 9. T.F.H. Publications: Neptune, New Jersey.

Basilewsky, S. 1855. Ichthyographia Chinae Borealis. *Nouv. mem. Soc. Imp. Nat. Moscou* 10: 215-263.

Bleeker, P. 1847. Overzigt der te Batavia voorkomende Gladschubbige Labroieden (in subtitle: Lipvisschen), met bexchrijving van 11 nieuwe species. *Verh. Bat. Gen.* 23(3): 1-64.

Bloch, M.E. 1788. *Naturgeschichte der auslandischen Fische.* Part 3. Berlin. xiv, 146 pp.

Chabanaud, P. 1930. Les genres de poissons hétérosomates (Pisces Heterosomata) appartenant a la sous-famille des Soleinae. *Bull. Inst. Océanograph.* 555, 23 pp.

Chabanaud, P. 1934. Les soléidés du groupe *Zebrias*. Définition d'un sous-genre nouveau et description d'une sous-èspece nouvelle. *Bull. Soc. zool. Fr.* 59: 420-436.

Chabanaud, P. 1943. Notules ichthyologiques. XXII. Nouveaux genres de las famille des Soleidae. *Bull. Mus. nat. d'Hist. Natur.* (2) 15: 291-293.

Cuvier, G. and Valenciennes, A. 1829. *Histoire naturelle des Poissons.* Vol. 4. Paris-Strasbourg. xxvi, 518 pp.

Gloerfelt-Tarp, T. and Kailola, P.J. 1984. *Trawled Fishes of Northern Indonesia and Northwestern Australia.* Aus-

tralian Development Assistance Bureau: Canberra. 406 pp.

Gomon, M.F. 1974. A new eastern Pacific labrid (Pisces), *Decodon melasma*, a geminate species of the western Atlantic *D. puellaris. Proc. biol. Soc. Wash.* 87(19): 205-216.

Gomon, M. F. and Allen, G.R. 1987. New Australian fishes. Part 7. A new species of *Choerodon* (Labridae). *Mem. Mus. Vict.* 48: 25-26.

Günther, A. 1860. *Catalogue of the acanthopterygian fishes in the collection of the British Museum.* Vol. 2. London. 548 pp.

Hubbs, C. and Lagler, K. 1947. Fishes of the Great Lakes Region. *Bull. Cranbrook Inst. Sci.* 26: 1-135.

Jordan, D.S. 1919. The genera of fishes, part II, from Agassiz to Bleeker, 1833-1858, twenty-six years, with the accepted type of each. A contribution to the stability of scientific nomenclature. *Leland Stanford Junior University Pub., Univ. Ser.* i-ix, 163-284, i-xiii.

Jordan, D.S. and Snyder, J.O. 1900. A list of fishes collected in Japan by Keinosuke Otaki, and by the United States Steamer Albatross, with descriptions of fourteen new species. *Proc. U.S. Mus.* 23: 335-380.

Kamohara, T. 1958. A review of the labrid fishes found in the waters of Kochi Prefecture, Japan. *Reps. Usa Mar. Biol. Sta.* 5(2): 1-20.

McCulloch, A.R. 1916. Ichthyological items. *Mem. Qd Mus.* 5: 58-69.

Macleay, W. 1882. Notes on the Pleuronectidae of Port Jackson, with descriptions of two hitherto unobserved species. *Proc. Linn. Soc. N.S.W.* 7: 11-15.

Norman, J.R. 1926. A report on the flatfishes (Heterosomata) collected by the F.I.S. "Endeavour", with a synopsis of the flatfishes of Australia and a revision of the subfamily Rhombosoleinae. *Biol. Results Fish. Exp. "Endeavour"* 5(5): 219-308.

Ochiai, A. 1963. Soleina. *Fauna Japonica. Biogiographical Soc. Japan, Tokyo.* 114 pp.

Ogilby, J.D. 1910. On some new fishes from the Queensland Coast. *Proc. R. Soc. Qd* 23: 85-189.

Richards, W.J. and Saksena, V.P. 1977. Systematics of the gurnards, genus *Lepidotrigla* (Pisces, Triglidae), from the Indian Ocean. *Bull. mar. Sci. Gulf Caribb.* 27: 208-222.

Sainsbury, K.J., Kailola, P.J. and Leyland, G.G. 1985. *Continental Shelf Fishes of Northern and Northwestern Australia.* Clouston and Hall: Canberra. 375 pp.

Smith, J.L.B. 1953. *The Sea Fishes of Southern Africa.* 3rd edition. Cape Town. xviii, pp. 564.

Temminck, C.J. and Schlegel, H. 1850. Pisces. In: Siebold, P. F. von, *Fauna Japonica, sive descriptio animalium quae in itinere per Japoniam suscepto annis 1823-30 collegit, etc.* 2 vols. Lugduni Batavorum. 323 pp.