

## On the Status of Species Classified in the Genus *Perca* by Johann Julius Walbaum (1792)

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**Paolo Parenti (2003)** On the status of species classified in the genus *Perca* by Johann Julius Walbaum (1792). *Zoological Studies* 42(4): 491-505. The status of 20 nominal species described by Walbaum (1792) in the genus *Perca* is determined. Thirteen nominal species (*P. bifasciata*, *P. callyodon*, *P. grammistes*, *P. jagonis*, *P. koelreuteri*, *P. koschar*, *P. nadjil*, *P. norwegica*, *P. reticulata*, *P. septemfasciata*, *P. tessellata*, *P. tigrina*, *P. trifasciata*) are shown to be junior synonyms of well known percoid fishes, one (*P. blennioides*) is regarded as a nomen dubium, and 6 nominal species have been found to predate long-accepted taxa. *Perca balah* is a senior synonym of *Cephalopholis argus* (Bloch and Schneider, 1801), *P. dorso* of *Lutjanus sebae* (Cuvier, 1816), *P. lentiginosa* of *Paracirrhites forsteri* (Schneider, 1801), *P. maculosa* of *Cephalopholis taeniops* (Valenciennes, 1828), *P. manca* of *Epinephelus quoyanus* (Cuvier, 1830), and *P. tysonis* of *Amphiprion percula* (Lacepède, 1801). Conditions exist, however, that allow reversal of precedence and maintenance of prevailing usage in accordance with the Principle of Priority as provided by Article 23.9.1 of the *International Code of Zoological Nomenclature*. Thus, the 6 junior synonyms of other authors are here regarded as valid and qualified as nomina protecta, whereas the corresponding senior names of Walbaum are here recognized as invalid and qualified as nomina oblita. <http://www.sinica.edu.tw/zool/zoolstud/42.4/491.pdf>

**Key words:** Fish taxonomy, *Perca*, Senior synonym, Nomen protectum, Walbaum.

Johann Julius Walbaum (1724-1799), doctor of medicine and owner of a cabinet of natural objects in Lubeck, became well known through several zoological publications on fishes and turtles (Müller 1973). In ichthyology, his major contribution was the *Petri Artedi renovati*, a work conceived to present all genera and species of fishes known to date, arranged according to Artedi's classification and accompanied by an updated bibliographic reference (Walbaum 1788-1793). In the 3rd part of his book (*Genera Piscium*) Walbaum (1792) named more than 200 new species of fishes. The book was severely criticized by Cuvier (1828a) and almost ignored throughout the *Histoire Naturelle des Poissons*. Several decades later, Theodore Gill recognized some value to Walbaum's work "because of the reproduction of the descriptions of the new genera introduced by

various authors into the system" and for "the incorporation therein, under specific names, of anonymous American species described by Schoepf" (Gill 1872: 38). In a following article Gill (1903: 745) stated, "The *Genera Piscium* was well edited by Walbaum.... He brought the work [of Linnaeus] up to date by addition given in footnote." Despite these opinions, historical reasons combined with Walbaum's style (species not accompanied by type material, description poor in many instances, no illustration given except for *Zeus stroemii*, and no type locality reported for over 42% of the new species described) contributed to the relegation of most of Walbaum's species to obscurity.

The *Genera Piscium* includes 43 nominal species that are currently recognized as valid. Of the remaining available names, roughly 60% have

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no status (Eschmeyer 1998, Parenti 2002b). A careful reexamination of the text revealed that the group of unplaced names contains several senior and junior synonyms of well-known fish species (Parenti 2002a b, Parenti and Pietsch 2003). The consequence of the discovery that older names predate long-established ones necessitates nomenclatural actions. The *International Code of Zoological Nomenclature* (1999) states that the principle of priority is to be used to promote stability and not upset long-accepted names. Therefore, in accordance with that principle, the application of reversal of precedence of 2 names and the continuation of the prevailing usage of a younger synonym is allowed when 2 conditions are met (see Article 23.9): (1) a name has not been used as valid since 1899, and (2) the valid name has been used as such in at least 25 works, published by at least 10 authors during the past 50 yr, encompassing a span of not less than 10 yr. If both conditions apply, then the older name is invalid and qualified as a nomen oblitum, whereas the younger synonym is valid and qualified as a nomen protectum.

In this paper, a study of the species described by Walbaum in the genus *Perca*, as a part of a comprehensive study of the importance of Johann Julius Walbaum in ichthyology, is reported. Six names have been found to represent senior synonyms of well-known fish species. The aim of this work is twofold: i) to provide evidence that these names represent nomina oblita and thus can be invalidated by reversal of precedence, and ii) to give a status to all the nominal species of the genus *Perca* described by Walbaum and that have been ignored in the scientific literature (Eschmeyer 1998).

## MATERIALS AND METHODS

All species described as new by Walbaum are based on literature sources. No type material is known for them. Therefore all conclusions are based on the examination of original texts. A full translation from Latin of both the diagnosis and description for each species is given. The adopted style is as close as possible to the original author's style.

Species accounts are presented according to Walbaum's style, but some explanations are needed. The original source is given in italics at the end of either the diagnosis or the description exactly as reported in Walbaum's text. In some instances Walbaum accompanied his diagnosis by

one or more short paragraphs, herein labeled as "additional diagnosis", which include diagnoses of species that the author regarded as synonyms. In Walbaum's text, this diagnosis is placed either before or after the true description (lacking for some species) and followed by a reference. For convenience, I have always placed it before the description. Sometimes a vernacular name taken from the literature is also added. Walbaum copied descriptions almost entirely and verbatim from other authors' original text, preferring a short summary only when the original was very long (as for the species described by Koelreuter). Following each description is a "comments" section discussing the status of the species.

## RESULTS

Under the genus *Perca*, Walbaum listed 75 species and 15 varieties (of which 5 were non-Latinized). Among them, 27 are new and usually labeled by the author's initial "W." at the end of a short diagnosis. All these new taxa (including those known from the current literature) along with their present allocation are reported in Table 1. Four nominal species (*P. apoda*, *P. rufa*, *P. saxatilis*, and *P. unicolor*) are presently regarded as valid, while 3 (*P. furva*, *P. immaculata*, and *P. stellio*) represent well-recognized junior synonyms (Eschmeyer 1998). The status of the other 20 nominal species is discussed below. Species are arranged alphabetically in 2 main sections: senior (6) and junior (13) synonyms. One nominal species is regarded as nomen dubium and discussed separately.

### Senior synonyms

#### *Perca balah* Walbaum

*Perca balah* Walbaum, 1792: 338. Type locality: Red Sea.

*Diagnosis:* Body dark brown; with blue spots. Forsskål Descr. Animal 41.

*Description:* Posterior margin of anal fin and soft dorsal fin whitish.

*Comments:* The description is very short and represents one of 2 varieties (variety b) of *Perca miniata* Forsskål, 1775. Randall and Heemstra (1991: 34) reported that the 1st author who gave a binomial name to variety b was Bloch, naming it *Bodianus guttatus* (Bloch, 1790: 36). This name (as well as *Anthias argus* Bloch, 1792, based on

the same variety) was placed on the Official List of Rejected and Invalid Specific Names in Zoology in order to preserve *Cephalopholis argus* Bloch and Schneider, 1801 as the valid name for this species. Randall and Heemstra overlooked the existence of a 3rd name, *Perca balah* Walbaum, which pre-dates *C. argus*. However, conditions exist that allow application of reversal of precedence and maintenance of prevailing usage of the junior synonym in accordance with the purpose of the principle of priority. Both the conditions of Article 23.9.1 of the *International Code of Zoological Nomenclature* are met: *Perca balah* has not been used as valid since 1899 (Article 23.9.1.1), and *C. argus* has been used as a valid name by at least 10 authors in 25 publications during the past 50 yr, encompassing a span of not less than 10 yr (Article 23.9.1.2). Herein, *C. argus* is regarded as the valid name and qualified as a nomen protectum. *Perca balah* Walbaum, 1792 is an invalid name and here qualified as a nomen oblitum. To

give evidence that the conditions of Article 23.9.1.2 are met, the following publications are included: Kyushin et al. 1982, Dor 1984, Masuda et al. 1984, Heemstra and Randall 1986 1993 1999, Allen and Swainston 1988, Paxton et al. 1989, Lee 1990, Winterbottom et al. 1989, Randall et al. 1990, Randall and Heemstra 1991, Francis 1993, Goren and Dor 1994, Randall 1995 1999, Allen 1997, Kuitert 1997, Fricke 1999, Randall and Lim 2000, Laboute and Grandperrin 2000, Sadovy and Cornish 2000, Randall and Earle 2000, and Hutchins 2001a b.

### ***Perca dorso* Walbaum**

*Perca dorso* Walbaum, 1792: 353. No type locality.

*Diagnosis:* Yellowish with 2 bands verging to black; head large, dorsal fin connected with a longer posterior part leaning to rear to forked caudal fin. *W.*

*Additional diagnosis:* A perch with equal jaws,

**Table 1.** New taxa described by Walbaum (1792) in the genus *Perca* and their present allocation

| Original combination                         | Present allocation  |
|--|---|
| 1. <i>Perca apoda</i>                        | <i>Lutjanus apodus</i> (Walbaum, 1792), Fam. Lutjanidae             |
| 2. * <i>Perca balah</i> <sup>a</sup>         | <i>Cephalopholis argus</i> (Bloch and Schn., 1801), Fam. Serranidae |
| 3. <i>Perca bifasciata</i> <sup>a</sup>      | <i>Amphiprion polymnus</i> (Linnaeus, 1758), Fam. Pomacentridae     |
| 4. <i>Perca blennoides</i>                   | nomen dubium  |
| 5. <i>Perca callyodon</i> <sup>a</sup>       | <i>Scarus iseri</i> (Bloch, 1789), Fam. Scaridae                    |
| 6. * <i>Perca dorso</i> <sup>a</sup>         | <i>Lutjanus sebae</i> (Cuvier, 1816), Fam. Lutjanidae               |
| 7. <i>Perca furva</i>                        | <i>Centropristis striata</i> (Linnaeus, 1758), Fam. Serranidae      |
| 8. <i>Perca grammistes</i> <sup>a</sup>      | <i>Grammistes sexlineatus</i> (Thunberg, 1792), Fam. Serranidae     |
| 9. <i>Perca immaculata</i>                   | <i>Morone americana</i> (Gmelin, 1789), Fam. Moronidae              |
| 10. <i>Perca jagonis</i> <sup>a</sup>        | <i>Centrolophus niger</i> (Gmelin, 1789), Fam. Centrolophidae.      |
| 11. <i>Perca koelreuteri</i> <sup>a</sup>    | <i>Premnas biaculeatus</i> (Bloch, 1790), Fam. Pomacentridae        |
| 12. <i>Perca koschar</i> <sup>a</sup>        | <i>Epinephelus fuscoguttatus</i> (Forsskål, 1775), Fam. Serranidae  |
| 13. * <i>Perca lentiginosa</i> <sup>a</sup>  | <i>Paracirrhites forsteri</i> (Schneider, 1801), Fam. Cirrhitidae   |
| 14. * <i>Perca maculosa</i> <sup>a</sup>     | <i>Cephalopholis taeniops</i> (Val., 1828), Fam. Serranidae         |
| 15. * <i>Perca manca</i> <sup>a</sup>        | <i>Epinephelus quoyanus</i> (Cuvier, 1830), Fam. Serranidae         |
| 16. <i>Perca nadjil</i> <sup>a</sup>         | <i>Cephalopholis miniata</i> (Forsskål, 1775), Fam. Serranidae      |
| 17. <i>Perca norvegica</i> <sup>a</sup>      | <i>Sebastes norvegicus</i> (Ascanius, 1772), Fam. Sebastidae        |
| 18. <i>Perca reticulata</i> <sup>a</sup>     | <i>Epinephelus striatus</i> (Bloch, 1792), Fam. Serranidae          |
| 19. <i>Perca rufa</i>                        | <i>Holocentrus rufus</i> (Walbaum, 1792), Fam. Holocentridae        |
| 20. <i>Perca saxatilis</i>                   | <i>Morone saxatilis</i> (Walbaum, 1792), Fam. Moronidae             |
| 21. <i>Perca septemfasciata</i> <sup>a</sup> | <i>Conodon nobilis</i> (Linnaeus, 1758), Fam. Sciaenidae            |
| 22. <i>Perca stellio</i>                     | <i>Epinephelus adscensionis</i> (Osbeck, 1765), Fam. Serranidae     |
| 23. <i>Perca tessellata</i> <sup>a</sup>     | <i>Parapercis cylindrica</i> (Bloch, 1792), Fam. Pinguipedidae      |
| 24. <i>Perca tigrina</i> <sup>a</sup>        | <i>Serranus tigrinus</i> (Bloch, 1790), Fam. Serranidae             |
| 25. <i>Perca trifasciata</i> <sup>a</sup>    | <i>Premnas biaculeatus</i> (Bloch, 1790), Fam. Pomacentridae        |
| 26. * <i>Perca tysonis</i> <sup>a</sup>      | <i>Amphiprion percula</i> (Lacepède, 1802), Fam. Pomacentridae      |
| 27. <i>Perca unicolor</i>                    | <i>Hypoplectrus unicolor</i> (Walbaum, 1792), Fam. Serranidae       |

<sup>a</sup>Nominal species that are here regarded as new synonyms.

\*Senior synonyms invalidated by reversal of precedence.

2 dark oblique bands on both sides of the body. Sebae thes. III, tab. 27. fig. 11. D. 11/27, P..., V. 1/6, A. 3/13, C....

*Description:* Not given.

*Comments:* *Perca dorso* was proposed for a fish described and illustrated by Seba (1759: 77, pl. 27, fig. 11), which is here reproduced in figure 1. Cuvier (1816: 275, footnote) named it *Diacope sebae* based on the same illustration (pl. 27, fig. 11) and on Russel (1803: 77, fig. xcix). Cuvier later described *D. sebae* in greater detail as new (Cuvier and Valenciennes 1830: 411), but, in this instance, he quoted in the footnote the wrong figure (fig. 2, which is a polynemid). He stated that the species has been overlooked by ichthyologists, but it was reproduced by Russel in his collection of fishes from Vizagapatam with the vernacular name of *botlavoo-champah*. Günther (1859: 176) placed *D. sebae* under the genus *Genyorange* and included Seba's plate 27, fig. 2 in the synonymy, but again he misprinted the figure number. Under the account of *Lutjanus sebae* Bleeker (1876-77: 63) correctly included *Perca maxillis aequalibus*... Seba, pl. 27, fig. 11 and Russel's specimens as older descriptions of *D. sebae* Cuvier. Thus, no doubt remains that *P. dorso* Walbaum represents the 1st available name for the species currently known as *Lutjanus sebae* (Cuvier, 1816). However, conditions exist that allow application of reversal of precedence and maintenance of prevailing usage of the junior synonym as provided by Article 23.9.1 of the *International Code of Zoological Nomenclature*: *Perca dorso* has not been used as valid since 1899 (Article 23.9.1.1), and *L. sebae* has been used as valid name in at least 25 works, published by at least 10 authors during the past 50 yr, encompassing a span of not less than 10 yr (Article 23.9.1.2). *Lutjanus sebae*

(Cuvier, 1816) is here regarded as the valid name and here qualified as a nomen protectum. *Perca dorso* Walbaum, 1792 is an invalid name and here qualified as a nomen oblitum. To give evidence that the conditions of Article 23.9.1.2 are met, the following publications are here included: Kyushin et al. 1977 1982, Russell 1983, Akazaki in Masuda et al. 1984, Dor 1984, Allen and Talbot 1985, Allen 1985, Anderson 1986, Allen and Swainston 1988a, Winterbottom et al. 1989, Randall et al. 1990, Kuitert 1993, Goren and Dor 1994, Randall 1995, Allen 1997, Kuitert 1997, Fricke 1999, Johnson 1999, Nakabo 2000, Nedwman et al. 2000; Randall and Lim 2000, Laboute and Grandperrin 2000, and Hutchins 2001a b.

### ***Perca lentiginosa* Walbaum**

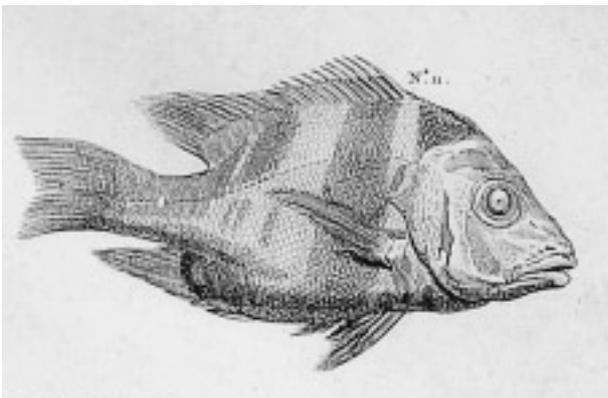
*Perca lentiginosa* Walbaum, 1792: 353. No type locality.

*Diagnosis:* Dorsal fins distinct; dirty white, above lateral line clouded with blackish blotch; head spotted.

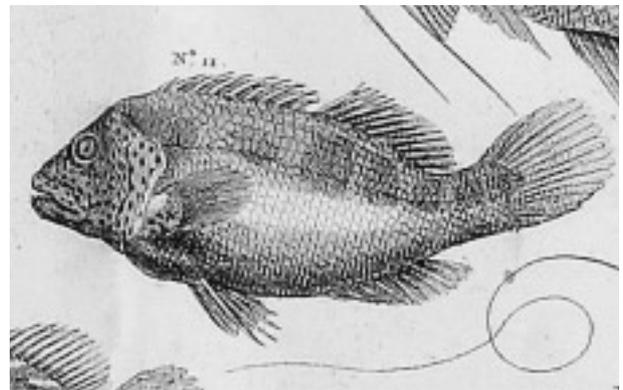
*Additional diagnosis:* *Perca* with equal jaws, head spotted, caudal fin equal. Sebae thes. III. tab. 27. fig. 12. D. 10/10,12. P. 14. V. 6, A. 3/10, C. 16.

*Description:* Not given.

*Comments:* Walbaum diagnosed *Perca lentiginosa* as new even though he omitted his initial (*W.*) at the end of the statement. As stated in the additional diagnosis, the species is based on a fish illustrated by Seba (pl. 27, figure 12), recognized since Cuvier (1829: 70) as a member of the Cirrhitidae. The specimen is here illustrated in figure 2. Cuvier described this fish as *Cirrhitus pantherinus* nob., a new combination of *Sparus pantherinus* Lacepède, 1802. As stated by Cuvier, both Seba and Lacepède based their description



**Fig. 1.** Illustration on which the original description of *Perca dorso* Walbaum, 1792 was based.



**Fig. 2.** Illustration on which the original description of *Perca lentiginosa* Walbaum, 1792 was based.

on a figure of Commerson, but their reproduction of the original illustration was judged imperfect in some details. Moreover, at the end of his account on *C. pantherinus*, Cuvier (1829: 74) recognized *Grammistes forsteri* Schneider, 1801, based on the manuscript name *Perca taeniata* Forster (posthumously published by Lichtenstein (Forster 1844: 224)), as a member of the Cirrhitidae. He regarded *G. forsteri* as probably the same as his *C. pantherinus*. Later Günther (1859: 71) and Bleeker (1876-77: 144) correctly listed *C. pantherinus* as a synonym of *G. forsteri*, but they overlooked *P. lentiginosa*. *Grammistes forsteri* is presently assigned to the genus *Paracirrhites*. Therefore, *P. lentiginosa* Walbaum is here regarded as the 1st available name for the species currently known as *Paracirrhites forsteri* (Schneider, 1801). However, conditions exist that allow application of reversal of precedence and maintenance of prevailing usage of the latter name as stated by Article 23.9.1 of the *International Code of Zoological Nomenclature*: *Perca lentiginosa* has not been used as valid since 1899, and *Paracirrhites forsteri* has been used as valid name in at least 25 works as stated above. *Paracirrhites forsteri* is here regarded as the valid name and qualified as a nomen protectum. *Perca lentiginosa* Walbaum, 1792 is an invalid name and here qualified as a nomen oblitum. To give evidence that the conditions of Article 23.9.1.2 are met, the following publications are here included: Herre 1953, Randall 1963 1986 1995 1999, Araga in Masuda et al. 1984, Wass 1984, Anderson and Hafiz 1987, Allen and Swainston 1988a, Winterbottom et al. 1989, Randall et al. 1990, Edwards and Shepherd 1992, Francis and Randall 1993, Kuitert 1993, Francis 1993, Goren and Dor 1994, Allen 1997, Kuitert 1997, Myers 1999, Fricke 1999, Randall and Lim 2000, Nakabo 2000, Laboute and Grandperrin 2000, Randall and Earle 2000, and Hutchins 2001a.

### ***Perca maculosa* Walbaum**

*Perca maculosa* Walbaum, 1792: 350. No type locality.

**Diagnosis:** Lower jaw longer; dorsal fin with 9 spines. Sebae thes. III. tab. 27. fig. 6. D. 9/23, P. 18, V. 6, A. 3/13, C. 17.

**Additional diagnosis:** The dotted perch. Pennant. Arct. Zool. Suppl. 127.

**Description:** Caudal fin entire. Spinous and soft portions of dorsal fin not divided. Body covered by lines of small black spots. Head silvery.

**Comments:** *Perca maculosa* represents an

original description even though Walbaum omitted his marking (*W.*) at the end of the diagnosis. Both *Perca maculosa* Walbaum and *Serranus taeniops* Valenciennes (1828b: 370) were based on *Perca maxilla inferiore longiore* etc. of Seba (1759: 77), illustrated on plate 27 (fig. 6) and here reproduced in figure 3. The combination *Serranus taeniops* was first made available after Cuvier (Cuvier et al. 1827), and Valenciennes (1828b: 370) was in error when he stated “cette figure (i.e., Seba, pl. 27, fig. 6) a été négligée par le nomenclateurs”, as he overlooked both *Serranus taeniops* Cuvier and *Perca maculosa* Walbaum. Therefore, *P. maculosa* represents a senior synonym of *S. taeniops* Valenciennes, but both conditions that allow prevailing usage, as provided by Article 23.9.1 of the *International Code of Zoological Nomenclature* are met: *Perca maculosa* has never been used as valid name, and *Cephalopholis taeniops* has been used as valid in the current literature (see above). Thus, *C. taeniops* is regarded as the valid name and here qualified as a nomen protectum. *Perca maculosa* Walbaum, 1792 is an invalid name and here qualified as a nomen oblitum. To give evidence that the conditions of Article 23.9.1.2 are met, the following publications are here included: Diaw 1976, Bauchot et al. 1984, Kotlyar 1984, Delgado de Molina and Santana 1985, Bianchi 1986, Maigret and Ly 1986, Magnússon and Magnússon 1987, Ofori-adu 1988, Sanches 1989, Schneider 1990, Smith 1990, Grabda and Heese 1991, Hureau 1991, Sanchez 1991, Heemstra 1991, Wirtz 1992, Heemstra and Randall 1993a, Randolph and Snyder 1993, Coppola et al. 1994, Diouf and Toguebaye 1994, Siau 1994, Reiner 1996, Debelius 1997, Seret and Opic 1997, and Afonso et al. 1999.

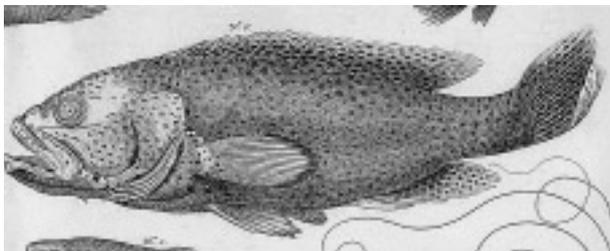
### ***Perca manca* Walbaum**

*Perca manca* Walbaum, 1792: 349. No type locality.

**Diagnosis:** Dorsal fins connected; pectoral fins lacking, body plumbeous, uniformly covered by large spots verging to red; caudal fin rounded. *W.*

**Description:** A perch with 4 fins, dorsal fin with posterior portion elevated, pectoral fins absent; 2 ventral fins close to gill membrane; anal fin with 2 spines, and 11 spines in the dorsal fin. Smooth to the touch; corner of mouth well beyond the eyes; iris yellowish. Opercle triangular: large rounded spots all over the plumbeous body and all fins; dark brown bands on flanks. Kleinii Miss. V. 43, tab. 8. fig. 3.

**Comments:** *Perca manca* was proposed for the fish described as *Percis pinnis quatuor* by Klein (1749: 43, pl. 8, fig. 3). The specific name refers to a species lacking pectoral fins. Walbaum provided a description copied entirely and verbatim from Klein's original text. By examining Klein's illustration, here reproduced in figure 4, it is evident that Klein confused the pectoral fins as pelvic fins. As was his style (see Gill 1872: 38) Walbaum failed to critically examine the original text and figure, and he did not realize that symmetrical fins illustrated in the Klein figure were actually the pectorals, and that the pelvic fins were concealed below them. Bleeker (1871-76: 56) recognized the fish figured by Klein as the same species later described by Richardson (1842:19) as *Serranus gilberti*, presently regarded as a junior synonym of *Epinephelus quoyanus* (Valenciennes, 1830) (Randall and Heemstra 1991: 240). *Epinephelus quoyanus* is one of a group of species, including *E. merra*, *E. tauvina*, *E. hexagonatus*, *E. spilotoceps*, *E. macrospilos*, *E. howlandi*, *E. faveatus*, and *E. melanostigma*, which have been frequently confused in the literature. Among them, *quoyanus* has been often misidentified as *E. macrospilos* or *E. hexagonatus*. It is characterized by having numerous large, close-set, roundish to hexagonal dark brown spots on the head, body, and fins (well separated in *macrospilos* and merging in *hexagonatus*). As it was first recognized by Bleeker, the color pattern of *Percis pinnis quatuor* of Klein fits well with that of the longfin rockcod *E. quoyanus*. Thus, *P. manca* Walbaum is here recognized as a senior synonym of *E. quoyanus* (Valenciennes, 1830). Again, both conditions exist that allow reversal of precedence and prevailing usage of the junior synonym as provided by Article 23.9.1 of the *International Code of Zoological Nomenclature*: (1) *Perca manca* has not been used as valid since 1899, and (2) *E. quoyanus* has been used as valid name in current literature (see above). *Epinephelus quoyanus* is here regarded as the



**Fig. 3.** Illustration on which the original description of *Perca maculosa* Walbaum, 1792 was based.

valid name and here qualified as a nomen protectum. *Perca manca* Walbaum, 1792 is an invalid name and here qualified as a nomen oblitum. To give evidence that the conditions of Article 23.9.1.2 are met, the following publications are here included: Smith 1969, Schroeder 1980, David 1985, Kailola 1987, Allen and Swainston 1988a, Paxton et al. 1989, Lee 1990, Randall et al. 1990, Randall and Heemstra 1991, Heemstra and Randall 1993 1999, Kuitert 1993, Krishnan and Mishra 1994, Chen and Chung 1994, Allen 1997, Larson and Williams 1997, Kuitert 1997, Connell 1998, Ikeda 1999, Johnson 1999, Nakabo 2000, Randall and Lim 2000, Sadovy and Cornish 2000, and Hutchins 2001a b.

### ***Perca tysonis* Walbaum**

*Perca tysonis* Walbaum, 1792: 351. No type locality.

**Diagnosis:** Dorsal fin almost separated; caudal fin rounded; body ovate; 6 transverse black bars. Phil. Transact. Vol. 61. p. 247.

**Description:** Not given.

**Comments:** Also in this instance Walbaum named *P. tysonis* omitting his initial (*W.*) at the end of the diagnosis and cited the literature source without providing the authorship. *Perca tysonis* is based on a fish described but not named by Rev. Michael Tyson (1771: 249), of which Walbaum provided the original diagnosis but failed to include the complete description reported on p. 249 of Tyson's article. The original text has been examined: it dealt with an alcohol-preserved specimen received by Rev. Tyson from Rev. Mr. Farmer, Fellow of Emanuel College in Cambridge, brought by the Commodore Byron from the newly discovered islands of the South Seas. In his letter, Rev. Tyson included a rather accurate Latin description and a drawing of the specimen (1771: pl. 7, fig. viii). A translation of Tyson's description follows. *Perca* \*\*\*\*\*. Head blunt, naked anteriorly. Mouth oblique, encircled by full lips, lower jaw longer. Teeth equal in both jaws, close-set, husked. Opercular margin distinctly serrate. A single pair of rounded, edged nostrils. Body ovate, laterally compressed, scaled. Fin bases scaled, fin margins black, rays tipped with short filaments. Two dorsal fins almost separated: the 1st roundish, with 10 spines, the 2nd angular, with 16 soft rays. Pectorals rounded, with 14 rays. Ventral rays 6. Anal fin angular, with 14 rays, the 2 anteriormost spinous. Caudal fin rounded, with 18 rays. Color gray. Six black transverse bands encircling the body: the 1st around head, just behind the eyes; the

2nd running along opercular margin; the 3rd sharp-edged, oblique from 1st dorsal fin to vent; the 4th from conjunction of spinous and soft portions to area behind anus; the 5th arched between 2nd dorsal fin and anal fin; the 6th almost straight at base of caudal fin.

The description best fits that of an anemonefish of the genus *Amphiprion*. The striking contrast of the orange body color and the white bars that characterize the live color of most *Amphiprion* was evidently lost in the preserved specimen examined by Rev. Tyson, leaving the more-evident shape of the large black edge of the bars. Fin ray counts of Tyson's *Perca* sp. agree with that of several species of the genus. However, the drawing made by Rev. Tyson (here reproduced in fig. 5) leaves no doubt about its identity with the species presently known as *Amphiprion percula*. The very similar *A. ocellaris* can be distinguished by a much reduced (usually absent) black edge around the white bars, usually 11 (instead of 10) dorsal spines and usually 16 (instead of 15) pectoral rays. Thus, while no doubt remains that *P. tysonis* Walbaum is a senior synonym of *A. percula* (Lacepède, 1802), conditions exist that allow application of reversal of precedence and maintenance of prevailing usage of the junior synonym, as provided by Article 23.9.1 of the *International Code of Zoological Nomenclature*: *Perca tysonis* has not been used as valid since 1899, and *A. percula* has been used as a valid name in current literature (see above). Thus, *A. percula* is regarded as the valid name and here qualified as a nomen protectum. *Perca tysonis* Walbaum, 1792 is an invalid name and here qualified as a nomen oblitum. To give evidence that the conditions of Article 23.9.1.2 are met the following publications are here included: Schuster and Djajadiredja 1952, Herre 1953, Hunter and Nayudu 1978, Webb 1981, Russell 1983, Kailola 1987, Randall et al. 1990, Allen 1991 1997, Grabda and Heese 1991, Moe 1992, Krishnan and Mishra 1994, Allen and Swainston 1988b, Allen and Munday 1994, Elliott and Mariscal 1997, Gardner 1997, Job et al. 1997, Kuitert 1997, Gordon et al. 1998, Randall 1998 1999, Myers 1999, Ni and Kwok 1999, Nelson et al. 2000, and Elliott and Mariscal 2001.

### Junior synonyms

#### *Perca bifasciata* Walbaum

*Perca bifasciata* Walbaum, 1792: 352. No type locality.

**Diagnosis:** Dorsal fins connected, 3 branchiostegal rays, caudal fin entire. *W.*

**Additional diagnosis:** A perch with 11 spines and 14 soft rays in the dorsal fin and 2 large whitish diagonal bands. Koelreuter in Nov. Comment. Petrop. Tom. X. 340.

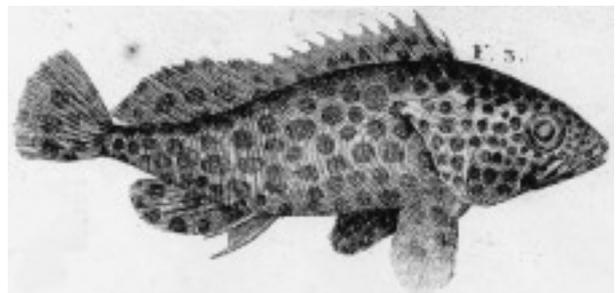
**Description:** A single dorsal fin. Opercle scaled, posterior margin armed with 2 major spines separated by a series of shorter spines. Caudal fin entire. Length 3.5 in (8.89 cm).

**Comments:** The name *Perca bifasciata* was proposed by Walbaum for a fish described and illustrated by Koelreuter (1764: 340, pl. 8, fig. 4), of which Walbaum provided the original diagnosis and a very short description, copied from page 342 of Koelreuter's article. Schneider (Bloch and Schneider 1801: 567) proposed the name *Holocentrus bifasciatus* for the same illustrated specimen. Cuvier (1830: 392) recognized the fish described by Koelreuter as the same species described by Bloch (1792: 108) as *Anthias bifasciatus*, presently regarded as a junior synonym of *Amphiprion polymnus* (Linnaeus, 1758) (Allen 1991: 237). Koelreuter is well known for the great accuracy of his descriptions (Cuvier 1828a: 110, footnote). The Latin description reported by Koelreuter (1764: 340) takes about 6 printed pages. After examining this description (in particular the color pattern and shape and size of the white bars across the head and body) and the black and white drawing accompanying the specimen (Koelreuter 1764: pl. 8, fig. 4), no doubt remains that *P. bifasciata* Walbaum represents a junior synonym of the anemonefish *A. polymnus* (Linnaeus, 1758).

#### *Perca callyodon* Walbaum

*Perca callyodon* Walbaum, 1792: 354. No type locality.

**Diagnosis:** Lower jaw longer, several longitudi-



**Fig. 4.** Illustration on which the original description of *Perca manca* Walbaum, 1792 was based.

nal stripes; dorsal fin with 11 spines. Sebae thes. III, tab. 27, fig.8. D.11/29. P... V.1/6. A. 3/16. C...

**Additional diagnosis:** A *Callyodon* with somewhat sharp head, caudal fin rounded. Gronov. Zooph. n. 244. Mus. Ichth. II. n. 156. tab. 7. fig. 4.

**Description:** Not given.

**Comments:** As for most species based on Seba, Walbaum did not provide a description for the fish he named. He added *Callyodon capite subacuto* of Gronow (1763: 72, pl. 7, fig. 4) as a synonym. This later was named twice in the 19th century: Bloch and Schneider (1801: 312) described it as *Calliodon lineatus*, then Gray (1854: 84) used the combination *Callyodon lineatus*. Bloch and Schneider (1801: 313) regarded *Perca maxilla inferiore*, ... of Seba as a variety of *lineatus* and named it *C. lineatus differt*. Valenciennes (in Cuvier and Valenciennes 1840: 289) erroneously regarded both Gronow's and Seba's specimens as well as *C. lineatus* Bloch and Schneider as the same as his *Callyodon ustus*, which is presently considered a valid species of the genus *Nicholsina*. Recently, Parenti and Randall (2000: 57) regarded *C. lineatus* Bloch and Schneider as a junior synonym of *Scarus iseri* (Bloch, 1789) (as *iseri* in most current literature). It follows that *P. callyodon* Walbaum represents another synonym of *S. iseri* (Bloch, 1789).

### ***Perca grammistes* Walbaum**

*Perca grammistes* Walbaum, 1792: 335. No type locality.

**Diagnosis:** Reddish, white longitudinal stripes; dorsal fins connected; caudal fin rounded.

**Additional diagnosis:** Grammistes. Sebae thes. III, tab. 27. fig. 5. D. 8/8,14. P.16. V.1/6. A 1/16. C.

**Description:** Not given.

**Comments:** *Perca grammistes* was proposed for a fish described and illustrated by Seba (1759: 75, pl. 27, fig. 5). Bloch and Schneider (1801: 188) described *Grammistes orientalis* and recognized it as the same fish illustrated by Seba (loc. cit.) and by Thunberg (1792: 142, pl. 5) as *Perca sexlineata*. *Perca grammistes* Bloch and Schneider, 1801 is actually a synonym of *P. sexlineata* Thunberg, 1792 (Paepke 1999: 136). Therefore *P. grammistes* Walbaum represents a new synonym of *Grammistes sexlineatus* (Thunberg, 1792). The precedence between the 2 names cannot be objectively determined; therefore, as First Reviser, I select *Grammistes sexlineatus* (Thunberg, 1792) as having priority over *Perca grammistes* Walbaum, 1792.

### ***Perca jagonis* Walbaum**

*Perca jagonis* Walbaum, 1792: 352. No type locality.

**Diagnosis:** Black, a single long dorsal fin; caudal fin forked. *W.*

**Additional diagnosis:** The Black-Fish. Borlase Cornwall. 271. tab. 26. fig. 8. Pennant Br. Zool. III. 260.

Black perch, covered by very small scales. Gmelini L.S.N. 1321.

**Description:** Body smooth, scales minute, 15 (38.1 cm) in long, and 3/4 (1.9 cm) in depth. Head and snout as in *Trutta*. Eyes large and bright. Teeth minute. A single, long dorsal fin. Caudal fin forked. Ventral fin thoracic. Lateral line slightly curved, running close to the back.

**Comments:** The name *Perca jagonis* was proposed by Walbaum for a fish described and illustrated by Borlase (1758: 271, pl. 26, fig. 8) in his natural history of Cornwall. Walbaum named the species after George Jago, the Cornish priest who provided the early account of this fish using the vernacular name black-fish. *Perca nigra* Gmelin (1789: 1321) is based on the same illustrated specimen, and it is correctly listed in synonymy. *Perca nigra* is a valid species of the genus *Centrolophus* (see Haedrich 1967: 65). Therefore, *P. jagonis* Walbaum represents a new, objective synonym of *Centrolophus niger* (Gmelin, 1789).

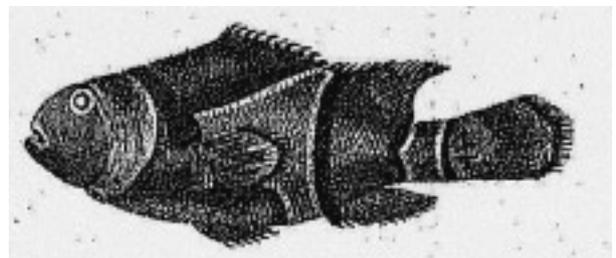
### ***Perca koelreuteri* Walbaum**

*Perca koelreuteri* Walbaum, 1792: 343. No type locality.

**Diagnosis:** Dorsal fin continuous; 3 bars across body. *W.*

**Additional diagnosis:** A perch with 3 white bars; cheek armed with 2 spines, the 1st long, the 2nd short. Koelreuter in Nov. Comm. Petrop.. X. 346. tab. 8. fig. 5. Br. 3. D.9/27. P.17. V.1/6. A.2/16. C.18.

**Description:** Body oblong, compressed, scaled. Head somewhat triangular, compressed,



**Fig. 5.** Illustration on which the original description of *Perca tysonis* Walbaum, 1792 was based.

with a steep upper profile, a blunt snout, and a scaleless cheek. Opercle not scaled, transparent, its margin serrated and membranous. Cheek surface uneven, irregular, with 2 spines. Gape slightly oblique. Jaws equal, covered by lips; the lower one pierced by 10 pores. Teeth in a single row, conical, with blunt tips. Eyes high on head, of medium size. Nostrils simple. Branchiostegal membrane concealed. Body ovate-oblong, rounded, narrower posteriorly, with crossbands. Lateral line high on body following dorsal profile. Vent somewhat medial, slightly closer to head. Dorsal fin long, notched, with rear portion elevated and angular, and base fleshy and scaled. Anal fin long, similar to dorsal fin. Pectorals fin ovate, inserted rather low on body. Ventral fins adjacent, lance-shaped, thoracic. Caudal fin rounded, its base scaled. Body color refers to a specimen preserved in alcohol, and it was pale with longitudinal whitish stripes and 3 bent crossbands of the same color: the 1st between head and trunk, the 2nd descending in middle of trunk, the 3rd around caudal peduncle. Length 4.5 (11.4 cm), depth 1 (2.5 cm), and with 8 lines.

*Comments:* *Perca koelreuteri* was proposed for the 2nd perch-like fish described and illustrated by Koelreuter in his 3rd account on rare fishes preserved in the St. Petersburg Museum (Koelreuter 1764: 346, pl.8, fig. 5). Walbaum's description represents a synthesis of Koelreuter's original text, which was a very accurate, 6-page account. Walbaum used his own terms and failed to highlight those features that are diagnostic, thus resulting in a misleading description in some instances. Since Cuvier (1830: 406), the fish described by Koelreuter has been recognized as an earlier description of the spine-cheek anemonefish *Premnas biaculeatus* (Bloch, 1790). Therefore, *P. koelreuteri* Walbaum represents a new synonym of *Premnas biaculeatus* (Bloch, 1790). Walbaum (1792: 354) described this fish a 2nd time as *Perca trifasciata* (see below).

### ***Perca koschar* Walbaum**

*Perca summana* var. *koschar* Walbaum, 1792: 345. Type locality: Red Sea.

*Diagnosis:* Body bluish, dark spotted. Forsskål Descr. Animal 42. P. 18. C 18.

*Description:* Slightly differing from previous species (*Perca summana*). Numerous brush-like teeth. Body bluish. Black spot on the upper caudal peduncle. Dark brown circular spots. Head, jaws, and gill cover spotted. Eyes slightly reduced

in size. Interorbital region somewhat flat and excavated. Scales small and scarcely toothed. Caudal fin higher.

*Comments:* Walbaum named *Perca koschar* as a variety of *P. summana* Forsskål. Based on the color pattern, the presence of a spot on the caudal peduncle, and the interorbital space being slightly concave, the description agrees with that of the species presently known as *Epinephelus fuscoguttatus* (Forsskål, 1775), of which it represents a new junior synonym.

### ***Perca nadjil* Walbaum**

*Perca miniata* var. *nadjil* Walbaum, 1792: 339. Red Sea.

*Diagnosis:* Red with blue spots. Forsskål Descr. Animal 42.

*Description:* Teeth in lower jaw equal; in upper jaw, however, the medial longer and gathered in 2 separated little bundles. Blue spot or drop, brown-edged, dispersed all over body. Often 6 ft (1.8 m) in length.

*Comments:* Walbaum named *Perca nadjil* on *P. miniata* var. a Forsskål, 1775. Nothing in the description distinguishes this species from the Indo-Pacific grouper, *Cephalopholis miniata* (Forsskål, 1775), of which it is here regarded as a junior synonym.

### ***Perca norwegica* Walbaum**

*Perca norwegica* Walbaum, 1792: 327. No type locality [Greenland].

*Diagnosis:* Body red. Groenlandis Sullupaugak. Fabricii Fr. Groenl. 167. Br. 7. D.15/29. P.19. V.1/6. A.3/12. C.16.

*Additional diagnosis:* Marine perch, called *Uer*, *Hav-Uer* by Norwegians. JE Gunner, Lemii *Perca Norwegica* red body; dorsal fins joined; 15 dorsal spines, 14 soft rays. Perche rouge. Called *Uer* by Norwegians; Roodfisch. Ascanii icon. tab. 16. Br. Br. 7. D.15/29. P.19. V.1/6. A.3/11. C...

*Description:* Body scaled, laterally compressed, oblong-roundish, lanceolate, uniformly red, paler on abdomen. Head large, compressed, scaled, preopercular margin serrated. Rostrum somewhat uneven, of which the most important is the lateral horizontal spine characterized by its rounded tip and by marking the boundary ahead of eye. Mouth large, armed with numerous crusted teeth in both jaws; upper jaw much shorter than lower jaw, whose apex is divided into 2 parts; upper jaw consisting of 2 laminar bones: the lower one stronger, anteriorly bordered by 4 bone tuber-

cles, posteriorly marked by 4 small openings. Gill cover composed of 2 parts, the anteriormost rounded with 5 spines; the posterior, delimited by a long spine, constituted of 2 parts, which combined have 2 spines. Three nostrils on each side. Eyes large, blackish, iris silvery, covered by a white bulging membrane. Pectoral fins flexible, ovate, reaching almost to anus. Lower margin of ventral fin rounded. Dorsal fin continuous with spinous part lower than soft portion. Caudal fin somewhat entire. Lateral line prominent, slightly rough, somewhat straight. Scales large, roundish. Two feet (60 cm) in length and 0.5 ft (15 cm) in depth.

*Comments:* Walbaum provided a long and detailed description of *Perca norvegica*, a name proposed as a variety of *P. marina* Linnaeus, 1758. Although Walbaum recognized it as the same fish described and illustrated by Ascanius (1772: 7, pl. 16) as *P. norvegica* (spelled *norvegica* by Walbaum), the name was based on a fish described by Fabricius (1780: 167). Therefore, I regard *P. norvegica* Walbaum as independent of *P. norvegica* Ascanius, of which it represents a junior synonym. The status of *P. norvegica* Ascanius is a matter of debate, and it is dependent on the confusion surrounding the name *Perca marina* Linnaeus. Fernholm and Wheeler (1983: 238-240) pointed out that the elements on which the taxon *P. marina* Linnaeus, 1758 are based are referable to the Serranidae. They suggest synonymizing *P. marina* with *P. scribe* Linnaeus, 1758 (= *Serranus scribe*) and regarding *Sebastes norvegicus* (Ascanius, 1772) as the valid name for the species currently known as *S. marinus* (Linnaeus, 1758). The combination *S. norvegicus* was adopted by Cuvier (1829: 327), then followed by Günther (1860: 95), but scarcely has been used in modern times, compared with usage of *S. marinus*.

### ***Perca reticulata* Walbaum**

*Perca reticulata* Walbaum, 1792: 354. No type locality.

*Diagnosis:* Body whitish crossed by brown bars; a black spot dorsally on caudal peduncle; a black circle around eye. *W.*

*Additional diagnosis:* A perch with lower jaw longer than upper jaw, body crossed by band, and black spot on caudal peduncle. Sebae Thes. III, pl. 27, fig. 9. D.11/29. V. 6. A 3/12.

*Description:* Not given.

*Comments:* The name *Perca reticulata* was proposed for a fish illustrated by Seba on plate 27 of the 3rd volume of his *Locupletissimi rerum naturalium Thesauri*. As recognized by Cuvier (1828b:

290), this illustration corresponds to the species *Anthias striatus* Bloch, 1792, currently used as valid in the combination *Epinephelus striatus*. The discovery of the true identity of *P. reticulata* Walbaum has a consequence for nomenclature changes. Therefore, as First Reviser, I select *Epinephelus striatus* (Bloch, 1792) as having priority over *Perca reticulata* Walbaum, 1792.

### ***Perca septemfasciata* Walbaum**

*Perca septemfasciata* Walbaum, 1792: 353. No type locality.

*Diagnosis:* Dorsal fin deeply notched; anterior portion with 12 spines; caudal fin slightly forked. *W.*

*Additional diagnosis:* A perch with lower jaw longer than upper jaw; whitish with dark bands on side. Sebae Thes. III, pl. 27, fig. 14. D. 12/26. p.16. V.6. A. 3/11.

*Comments:* *Perca septemfasciata* was proposed by Walbaum for a fish illustrated and described by Seba (1759), which was recognized by Cuvier (Cuvier et al. 1827) as identical to *Sciaena coro* Bloch, 1792 and placed in the genus *Pristipoma*. *Sciaena coro* Bloch, illustrated with 8 dark vertical bands on its flanks (Bloch 1792: pl. 307, fig. 2), is a junior synonym of *Conodon nobilis* (Linnaeus, 1758) (Jordan and Evermann 1898: 1324). Thus, *P. septemfasciata* Walbaum represents a new synonym of *C. nobilis* (Linnaeus).

### ***Perca tessellata* Walbaum**

*Perca tessellata* Walbaum, 1792: 353. No type locality.

*Diagnosis:* Tapering, whitish; dark bands, divided in 2 halves, alternating and opposed around the lateral line; caudal fin equal, spotted. *W.*

*Additional diagnosis:* Perch oblong, tapering with 8 brown vertical bands on sides of the body. Sebae thes. III . tab. 27. fig. 16. D. 5/26. P.16. V. 1/6. A 1/18. C. 17.

*Description:* Not given.

*Comments:* *Perca tessellata* is a name proposed for another fish illustrated and described by Seba on plate 27 of his *Thesaurus*. Cuvier (Cuvier et al. 1827) regarded this fish to be the same species described by Bloch (1792: 42, pl. 299, fig. 1) as *Sciaena cylindrica*. He classified this species as *Percis cylindrica*, and it is currently regarded as valid in the combination *Parapercis cylindrica* (Bloch, 1792), a well-known sandperch from the West Pacific. The short diagnosis and fin ray counts of *P. tessellata* agree with the features of *P.*

*cylindrica* (Bloch). The precedence between *Sciaena cylindrica* Bloch and *P. tessellata* Walbaum cannot be ascertained. Thus, to best serve stability and universality of nomenclature, as First Reviser, I select *Sciaena cylindrica* Bloch, 1792 as having priority over *Perca tessellata* Walbaum, 1792.

### ***Perca tigrina* Walbaum**

*Perca tigrina* Walbaum, 1792: 352. No type locality.

**Diagnosis:** Whitish, irregular black bars alternating with black spots; dorsal fins connected, caudal fin truncate and spotted. *W.*

**Additional diagnosis:** A perch with longer lower jaw; body variegated with spots and vertical bars. Sebae thes. III . tab. 27. fig. 15. D.10/23. P.13. V... A.3/11. C...

A perch with single dorsal fin; head curtailed and scaled; opercle with 1 spine, scaled; caudal fin truncate. Gronov. Zooph. p. 91. Inhabits the Indies.

**Description:** A species of *Prochilus* with produced head; dorsal, anal, and caudal fins spotted; pectoral fins oblong, whitish; the rest of the body striated and spotted like the fur of a lynx. Kleinii. Miss. V. 60. tab.12. fig. 4.

**Comments:** *Perca tigrina* represents an original description overlooked in the current literature as well as in the *Catalog of Fishes* (Eschmeyer 1998). The name was proposed for a fish described and illustrated by Seba (1759: pl. 27, fig. 15), previously described and illustrated by Bloch (1790: 77, pl. 237) as *Holocentrus tigrinus*. Afterwards Cuvier (1828b: 314) described it again as new with the name *Serranus tigrinus*, and this combination is presently regarded as valid. In his account of *S. tigrinus*, Cuvier recognized that the fish had been illustrated by Seba (in the footnote, however, he cited the wrong figure, i.e., fig. 5 instead of fig. 15) and Klein (1749: 60, pl. 12, fig. 4) as *Prochilus n. 4* (misspelled *crochilus* by Cuvier). Cuvier believed the fish was from the Indian Ocean. Interestingly, both errors in Cuvier's text were repeated by Günther (1859: 114) with East Indies as a doubtful locality. Actually, *S. tigrinus* (Bloch, 1790), commonly known as harlequin bass, is a western Atlantic species ranging from Bermuda and southern Florida to northern South America. Thus, *P. tigrina* Walbaum represents a new synonym of and secondary homonym of *S. tigrinus* (Bloch, 1790).

### ***Perca trifasciata* Walbaum**

*Perca trifasciata* Walbaum, 1792: 354. No type locality.

**Diagnosis:** Dorsal fins connected; 3 white bars, caudal fin entire. *W.*

**Additional diagnosis:** A perch with 3 white bars; cheek armed with 2 spines, the 1st one long, the 2nd short. Koelreuter in Nov. Comm. Petrop. X. 346. D.9/27. P.17/32. V.6/11. A.2/16.

**Description:** A single dorsal fin. Caudal fin entire; 4.5 (11.4 cm) in long.

**Comments:** Apparently Walbaum did not realize that the name *Perca trifasciata* was proposed for a fish described by Koelreuter and that had been named a few pages before as *Perca koelreuteri* (Walbaum 1792: 343), a junior synonym of *Premnas biaculeatus* (Bloch, 1790). Thus, even though the account is very poor and brief and contains errors in fin rays count, no doubt remains that *P. trifasciata* Walbaum, 1792 should be regarded as a new synonym of *Premnas biaculeatus* (Bloch, 1790).

### **Nomina dubia**

#### ***Perca blennoides* Walbaum**

*Perca blennoides* Walbaum, 1792: 336. No type locality.

**Diagnosis:** Reddish, head scalesless, caudal fin rounded. *W.*

**Additional diagnosis:** A percoid with a single dorsal fin; head profile very steep; head scaleless; opercle serrated; caudal fin rounded; spinous portion of dorsal fin above eyes. Gronov. Zooph. n. 287.

A blenniid with a single dorsal fin with 6 spines and 16 soft rays, extending from eye to caudal fin. Gronov. Mus. Ichth., n.76. Br. 6. D 6/22. P.10. V 1/5. A 3/7.

**Description:** Body compressed, large, short, scaled, red mottled with white. Head compressed, snout profile very steep. Preopercle strongly serrated, opercle prolonged and pointed. Eyes high on the sides of the head. Dorsal profile slightly elevated, narrow. Lateral line curved, close to dorsal profile. Dorsal fin origin over eyes; dorsal fin with 22 rays and running from head to the caudal fin; pectoral fin brown; pelvic fins thoracic; fins armed with strong spines.

**Comments:** Diagnosis and description were taken from fish no. 287 of Gronow (1763: 86), a species not included by Gray (1854) and not represented by type material. Although classified in the

genus *Blennius*, its description does not fit with any known species of the Blennioidei, and there are some suggestions that it could belong to the Scorpaeniformes. According to Stuart Poss (pers. comm.) this species might be based on a specimen of *Congiopodus torvus* (Gronow, 1772), from which, however, it differs in the number of dorsal spines. Therefore, the status of *P. blennoides* Walbaum is here qualified as a nomen dubium.

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## REFERENCES

- Afonso P, FM Porteiro, RS Santos, JP Barreiros, J Worms, P Wirtz. 1999. Coastal marine fishes of Sao Tome Island (Gulf of Guinea). *Bull. Univ. Azores* **17A**: 65-92.
- Allen GR. 1975. Damselfishes of the South Seas. Neptune City, NJ: T.F.H. Publications.
- Allen GR. 1985. Snappers of the world. An annotated and illustrated catalogue of lutjanid species known to date. *FAO Species Catalogue* 6. Rome: FAO.
- Allen GR. 1991. Damselfishes of the world. Melle, Germany: Mergus Publishers.
- Allen GR. 1997. Marine fishes of tropical Australia and south-east Asia. Perth: Western Australian Museum, pp. 1-292.
- Allen GR, PL Munday. 1994. Kimbe Bay rapid ecological assessment: the coral reefs of Kimbe Bay (West New Britain, Papua New Guinea), Vol. 3: Fish diversity of Kimbe Bay. Auckland, NZ: South Pacific Program Office.
- Allen GR, R Swainston. 1988a. The marine fishes of north-western Australia. A field guide for anglers and divers. Perth: Western Australian Museum.
- Allen GR, R Swainston. 1988b. Reef fishes of New Guinea. Madang, New Guinea: Christensen Research Institute.
- Allen GR, FH Talbot. 1985. Review of the snappers of the genus *Lutjanus* (Pisces: Lutjanidae) from the Indo-Pacific, with the description of a new species. *Indo-Pac. Fishes* **11**: 1-87.
- Anderson RC, A Hafiz. 1987. Common reef fishes of the Maldives. Malé, Republic of Maldives: Novelty Press.
- Anderson WD Jr. 1986. Family 181: Lutjanidae. In MM Smith, PC Heemstra, eds. *The Smiths' sea fishes*. Johannesburg: Macmillan South Africa, pp. 572-579.
- Ascanius P. 1772. *Icones rerum naturalium, ou figures enluminées d'histoire naturelle du Nord*. Part 2. Copenhagen: Claude Philibert, 8 pp + pls. 11-20.
- Bauchot ML, M Desoutter, JE Randall. 1984. Catalogue critique des types des poissons du Muséum national d'Histoire Naturelle de Paris. Famille des Serranidae. *Bull. Mus. Natl. Hist. Nat. Ser. A* **6**: 3-82.
- Bianchi G. 1986. Fichas FAO de identificação de espécies para propósitos comerciais. Guia de campo para as espécies comerciais marinhas e de águas salobras de Angola. Preparado com o apoio da NORAD e da FAO (FIRM) Programa Regular. Rome: FAO.
- Bleeker P. 1871-76. *Atlas ichthyologique des Indes Orientales Néerlandaises*, publié sous les auspices du Gouvernement colonial néerlandais. Tome VII. Percoides I, Priacanthiformes, Serraniformes, Grammisteiformes, *Percaeiformes*, *Datniaeiformes*. Amsterdam: Frédéric Muller.
- Bleeker P. 1876-77. *Atlas ichthyologique des Indes Orientales Néerlandaises*. Tome VIII. Percoides II, (Spariformes), Bogodoïdes, Cirrhitoides. Amsterdam: Frédéric Muller.
- Bloch ME. 1790. *Naturgeschichte der ausländischen Fische*. Vol. 4. Berlin: Auf Kosten des Verfassers.
- Bloch ME. 1792. *Naturgeschichte der ausländischen Fische*. Vol. 6. Berlin: Auf Kosten des Verfassers.
- Bloch ME, JG Schneider 1801. M. E. Blochii, *Systema Ichthyologiae iconibus cx illustratum*. Post obitum auctoris opus inchoatum absolvit, correctit, interpolavit Jo. Gottlob Schneider, Saxo. Berlin: Sanderiano.
- Borlase W. 1758. *The natural history of Cornwall, the air, climate, rivers, lakes, sea and tides, etc.* Oxford, UK: W Jackson.
- Chen CH, KN Chung. 1994. A primary study on growth and feed efficiency ratio of long-finned grouper (*Epinephelus quoyanus*). *J. Taiwan Fish. Res.* **2**: 51-62.
- Connell SD. 1998. Patterns of piscivory by resident predatory reef fish at One Tree Reef, Great Barrier Reef. *Mar. Freshwater Res.* **49**: 25-30.
- Coppola SR, W Fischer, L Garibaldi, N Scialabba, KE Carpenter. 1994. SPECIESDAB: global species database for fishery purposes. User's manual. *FAO Computerized Information Series (Fisheries)*. Rome: FAO.
- Cuvier G. 1816. *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*. Vol. 2. Poissons. Paris: Levrault, pp 104-351.
- Cuvier G. 1828a. *Tableau historique des progrès de l'ichthyologie, depuis son origine jusqu'à nos jours*. In G Cuvier, A Valenciennes, eds. *Histoire Naturelle des Poissons*. Tome premier. Paris: Levrault, pp. 1-236.
- Cuvier G. 1828b. Des Serrans. In G Cuvier, A Valenciennes, eds. *Histoire Naturelle des Poissons*. Tome second. Paris: Levrault, pp. 210-386.
- Cuvier G. 1829. Des Cirrhites. In G Cuvier, A Valenciennes, eds. *Histoire Naturelle des Poissons*. Tome troisième. Paris: Levrault, pp. 66-77.
- Cuvier G. 1830. Des Amphiprions et des Premnades. In G Cuvier, A Valenciennes, eds. *Histoire Naturelle des Poissons*. Tome cinquième. Paris: Levrault, pp. 384-411.
- Cuvier G, AG Desmarest, J Geoffroy Saint-Hilaire et al. 1827. *Planches de Seba. Locuplentissimi rerum naturalium Theauri Accurata Descriptio. Accompagnées d'un text explicatif mis au courant de la Science et rédigé par M. le B. on Cuvier et une réunion de savants*. Ouvrage publié par les soins de M.E. Guérin; 5ème livraison. Paris: Levrault.
- Cuvier G, A Valenciennes. 1840. *Histoire Naturelle des Poissons*. Tome quatorzième. Suite du livre seizième. Labroides. Paris: Levrault.
- David G. 1985. Pêche de subsistance et milieu naturel: les mangrove de Vanuatu et leur intérêt halieutique. Notes et documents d'océanographie. Mission ORSTOM de Port-Vila, **13**: 1-67.
- Debelius H. 1997. *Mediterranean and Atlantic fish guide*.

- Frankfurt: IKAN.
- Delgado de MA, JC Santana. 1985. Estudio de los recursos demersales de la plataforma continental de la Republic de Gabon. *Inf. Téc. Inst. Esp. Oceanogr.* **31**: 1-110.
- Diaw AA. 1976. Un vocabulaire Wolof de la faune au Senegal. *Les Langues Nationales au Senegal* No. 67. Dakar, Senegal: Centre de Linguistique Appliquee de Dakar.
- Diouf JN, BS Toguebaye. 1994. Study of some marine fish coccidia of the genus *Eimeria* Schneider, 1815 (Apicomplexa, Coccidia) from Senegal coasts. *Acta Protozool.* **33**: 239-250.
- Dor M. 1984 CLOFRES. Checklist of the fishes of the Red Sea. Tel Aviv: Israel Academy of Sciences and Humanities.
- Edwards AJ, AD Shepherd. 1992. Environmental implications of aquarium-fish collection in the Maldives, with proposals for regulation. *Environ. Conserv.* **19**: 61-72.
- Elliott JK, RN Mariscal. 1997. Ontogenetic and interspecific variation in the protection of anemonefishes from sea anemones. *J. Exp. Mar. Biol. Ecol.* **208**: 57-72.
- Elliott JK, RN Mariscal. 2001. Coexistence of nine anemonefish species: differential host and habitat utilization, size and recruitment. *Mar. Biol.* **138**: 23-36.
- Eschmeyer WN. 1998. Catalog of fishes. San Francisco, CA: California Academy of Sciences.
- Fabricius O. 1780. Fauna Groenlandica, systematice sistens Animalia Groenlandiae occidentalis, etc. Copenhagen, Leipzig: Joannis Gottlob Rothe.
- Fernholm B, A Wheeler. 1983. Linnaean fish specimens in the Swedish Muséum of Natural History, Stockholm. *Zool. J. Linn. Soc.* **78**: 199-286.
- Forsskål P. 1775. Descriptiones animalium avium, amphibiorum, piscium, insectorum, vermium; quae in itinere orientali observavit. Post mortem auctoris edidit Carsten Niebuhr. Copenhagen: Carsten Niebuhr.
- Forster JR. 1844. Descriptiones animalium quae in itinere ad maris Australis terras per annos 1772 1773 et 1774 suscepto collegit observavit et delineavit Ioannes Reinoldus Forster. nunc demum editae. Berlin: Henrico Lichtenstein.
- Francis MP. 1993. Checklist of the coastal fishes of Lord Howe, Norfolk, and Kermadec Islands, Southwest Pacific Ocean. *Pac. Sci.* **47**: 136-170.
- Francis MP, JE Randall. 1993. Further additions to the fish faunas of Lord Howe and Norfolk Islands, southwest Pacific oceans. *Pac. Sci.* **47**: 118-135.
- Fricke R. 1999. Fishes of the Mascarene Islands (Réunion, Mauritius, Rodriguez). An annotated checklist with descriptions of new species. Königstein, Germany: Koeltz Scientific Books.
- Gardner TR. 1997. Commercial breeding of the dottybacks. *Seascope* **14**: 1-2.
- Gill TN. 1872. Arrangement of the families of fishes, or classes Pisces, Marsipobranchii, and Leptocardii. *Smiths. Misc. Coll.* **247**: 1-49.
- Gill TN. 1903. Walbaum and binomialism. *Science* **17**: 744-746.
- Gmelin JF. 1789. Caroli a Linné ... Systema Naturae per regna tria naturae, secundum classes, ordines, genera, species; cum characteribus, differentiis, synonymis, locis. Editio decimo tertia, aucta, reformata; Vol. 1. Leipzig, Germany: Georg Emanuel Beer.
- Gordon AK, H Kaiser, PJ Britz, T Hecht. 1998. Effect of feed type and age-at-weaning on growth and survival of clownfish *Amphiprion percula* (Pomacentridae). *Aquarium Sci. Conserv.* **2**: 215-226.
- Goren M, M Dor. 1994. An updated checklist of the fishes of the Red Sea. Tel Aviv: Israel Academy of Sciences and Humanities.
- Grabda E, T Heese. 1991. Polskie nazewnictwo popularne kraglouste i ryby. Cyclostomata et Pisces. Koszalin, Poland: Wyzsza Szkola Inzynierska w Koszalinie.
- Gray JE. 1854. Catalogue of fish collected and described by Laurence Theodore Gronow, now in the British Museum. London: The Natural History Museum.
- Gronow LT. 1754-1756. Museum Ichthyologicum. Leiden: Theodor Haak.
- Gronow LT. 1763. Zoophylacium Gronovianum (fasciculus primus). Leiden, Netherland: Theodor Haak et Samuel et Johannes Luchtmans.
- Günther A. 1859. Catalogue of the fishes in the British Museum. Vol. 1: Catalogue of the acanthopterygian fishes in the collection of the British Museum. Gasterosteidae, Berycidae, Percidae, Aphredoderidae, Pristipomatidae, Mullidae, Sparidae. London: The Natural History Museum.
- Günther A. 1860. Catalogue of the acanthopterygian fishes ...in the British Museum. Squamipinnes, Cirrhitidae, Triglidae, Trachinidae, Sciaenidae, Polynemidae, Sphyracnidae, Trichiuridae, Scombridae, Carangidae, Xiphiidae. London: The Natural History Museum.
- Haedrich RL. 1967. The stromateoid fishes: systematics and a classification. *Bull. Mus. Comp. Zool.* **135**: 31-139.
- Heemstra PC. 1991. A taxonomic revision of the eastern Atlantic groupers (Pisces: Serranidae). *Bol. Mus. Munic. Funchal* **43**: 5-71.
- Heemstra PC, JE Randall. 1986. Family no. 166: Serranidae. In MM Smith, PC Heemstra, eds. *Smiths' sea fishes*. Grahamstown, South Africa: Southern Book Publishers, pp. 509-537.
- Heemstra PC, JE Randall. 1993. Groupers of the world (family Serranidae, subfamily Epinephelinae); an annotated and illustrated catalogue of the grouper, rockcod, hind, coral grouper and lyretail species known to date. *FAO Species Catalog* 16. Rome: FAO.
- Heemstra PC, JE Randall. 1999. Family Serranidae. In KE Carpenter, VE Niem, eds. *Species identification guide for fisheries purposes. The living marine resources of the western central Pacific. Bony fishes part 2 (Mugilidae to Carangidae)*. Rome: FAO.
- Herre AWCT. 1953. Check list of Philippine fishes. *Res. Rep. US Fish Wild. Serv.* **20**: 1-977.
- Hunter CR, PL Nayudu. 1978. Surface folds in superficial epidermal cells of three species of teleost fish. *J. Fish Biol.* **12**: 163-166.
- Hureau JC 1991. La base de données GICIM: Gestion informatisée des collections ichthyologiques du Muséum. In *Atlas Préliminaire des Poissons d'Eaux Douce de France*. Paris: Conseil Supérieur de la Pêche, Ministère de l'Environnement, CEMAGREF et Muséum National d'Histoire Naturelle.
- Hutchins JB. 2001a. Checklist of the fishes of Western Australia. *Rec. West. Aust. Mus. Supplement* **63**: 9-50.
- Hutchins JB. 2001b. Biodiversity of shallow reef fish assemblages in Western Australia using a rapid censuring technique. *Rec. West. Aust. Mus.* **20**: 247-270.
- Ikeda H. 1999. Record of a serranid fish, *Epinephelus quoyanus* from southern Japan. *I.O.P. Div. News* **10**: 2-3.
- Job S, M Arvedlund, M Marnane. 1997. Culture of coral reef fishes. *Austasia Aquacult.* **11**: 56-59.
- Johnson JW. 1999. Annotated checklist of the fishes of

- Moreton Bay, Queensland, Australia. Mem. Queensl. Mus. **43**: 709-762.
- Jordan DS, W Evermann. 1898. The fishes of North and Middle America: a descriptive catalogue of the species of fish-like vertebrates found in the waters of North America, north of the Isthmus of Panama. Part II. Bull. US Natl. Mus. **47**: i-xxx + 1241-2183.
- Kailola PJ. 1987. The fishes of Papua New Guinea: a revised and annotated checklist. Vol. II Scorpaenidae to Callionymidae. Papua New Guinea: Department of Fisheries and Marine Resources.
- Klein JT. 1740-49. *Historiae Piscium Naturalis promovendae*. Danzig, Poland: Schreiberianis.
- Klein JT. 1749. De piscibus per branchias apertas spirantibus. Missus quintus et ultimus. In: *Historiae Piscium Naturalis promovendae*. Danzig, Poland: Schreiberianis, pp. 1-102, pls. i-xx.
- Koelreuter JT. 1764. *Piscium rariorum e Museo Petropolitano exceptorum descriptiones continuatae*. Novi Comment. Acad. Sci. Imp. Petropol. **10**: 329-351.
- Kotlyar AN. 1984. Dictionary of names of marine fishes on the six languages. Moscow: All Union Research Institute of Marine Fisheries and Oceanography.
- Krishnan S, SS Mishra. 1994. On a collection of fish from middle and south Andaman per branchia of islands. Rec. Zool. Surv. India **94**: 265-306.
- Kuiter RH. 1993. Coastal fishes of south-eastern Australia. Honolulu, HI: University of Hawaii Press.
- Kuiter RH. 1997. Guide to sea fishes of Australia. A comprehensive reference for divers and fishermen. Frenchs Forest, NSW: New Holland Publishers.
- Kyushin K, K Amaoka, K Nakaya, H Ida. 1977. Fishes of Indian Ocean. Tokyo: Japan Marine Fishery Resource Research Center.
- Kyushin K, K Amaoka, K Nakaya, H Ida, Y Tanino, T Senta, eds. 1982. Fishes of the South China Sea. Tokyo: Japan Marine Fishery Resource Research Center.
- Laboute P, R Grandperrin. 2000. Poissons de Nouvelle-Caledonie. Noumea, New Caledonia: Editions Catherine Ledru.
- Larson HK, RS Williams. 1997. Darwin Harbour fishes: a survey and annotated checklist. In JR Hanley, G Caswell, D Megirian, HK Larson, eds. Proceedings of the Sixth International Marine Biological Workshop. The Marine Flora and Fauna of Darwin Harbour, Northern Territory, Australia. Darwin, Australia: Museum and Art Galleries Northern Territories and Australian Marine Science Association, pp. 339-380.
- Lee SC. 1990. A revision of the serranid fish (family Serranidae) of Taiwan. J. Taiwan Mus. **43**: 1-72.
- Magnússon J, JVV Magnússon. 1987. ICEIDA/Cape Verde Islands Fisheries Project. Survey of demersal fish resources in the waters off Cape Verde Islands. IV. Report: summary of information on species. Reykjavik, Iceland: Icelandic International Development Agency/ Marine Research Institute.
- Maigret J, B Ly. 1986. Les poissons de mer de Mauritanie. Compiègne, France: Science Naturelle.
- Masuda H, K Amaoka, C Araga, T Uyeno, T Yoshino. 1984. The fishes of the Japanese Archipelago. Tokyo: Tokai University Press.
- Moe AM Jr. 1992. The marine aquarium handbook. Beginner to breeder. Plantation, FL: Green Turtle Publication.
- Müller HP. 1973. Der Ichthyologe und Schildkrotenforscher Johann Julis Walbaum. Die Heimat (Neumünster) **50**: 195-197.
- Myers RF. 1999. Micronesian reef fishes. A comprehensive guide to the coral reef fishes of Micronesia. 3rd revised ed. Guam: Coral Graphics.
- Nakabo T. 2000. Fishes of Japan with Pictorial Keys to the Species. 2nd ed. Tokyo: Tokai University Press.
- Nedwman SJ, M Cappel, D Mc, B Williams. 2000. Age, growth, mortality rates and corresponding yield estimates using otoliths of the tropical red snappers, *Lutjanus erythropterus*, *L. malabaricus* and *L. sebae*, from the central Great Barrier Reef. Fish. Res. **48**: 1-14.
- Nelson JS, LM Chou, RJ Hoddell, WK Chan, VPE Phang. 2000. Phylogeographic structure of false clownfish, *Amphiprion ocellaris*, explained by sea level changes on the Sunda shelf. Mar. Biol. **137**: 727-736.
- Ni IH, KY Kwok. 1999. Marine fish fauna in Hong Kong Water. Zool. Stud. **38**: 130-152.
- Ofori-adu DW. 1988. List of fishes, shellfishes and other marine food resources in the Ghanaian coastal waters. Mar. Fish. Res. Tech. Pap. **1**: 1-43.
- Paepke HJ. 1999. Bloch's fish collection in the Museum für Naturkunde der Humboldt Universität zu Berlin: an illustrated catalog and historical account. Theses Zool. **32**: 1-216.
- Parenti P. 2002a. *Muraena compressa* Walbaum, 1792, an invalid senior synonym of the snake mackerel *Gempylus serpens* Cuvier, 1829. Carib. J. Sci. **38**: 267-268.
- Parenti P. 2002b. On the species of the genus *Balistes* described by Johann Julius Walbaum (1792). Cybium **26**: 309-316.
- Parenti P, TW Pietsch. 2003. *Ostracion knorrii* Walbaum, 1792, a senior synonym of the striated frogfish *Antennarius striatus* (Shaw and Nodder, 1794) invalidated by "Reversal of Precedence". Copeia **2003**: 187-189.
- Parenti P, JE Randall. 2000. An annotated checklist of the species of the Labroid fish families Labridae and Scaridae. Ichthyol. Bull. **68**: 1-97.
- Paxton JR, DF Hoese, GR Allen, JE Hanley. 1989. Zoological catalogue of Australia. Vol. 7. Pisces. Petromyzontidae to Carangidae. Canberra: Australian Government Publishing Service.
- Pennant T. 1787. Arctic zoology supplement. 1st ed. London: Henry Hughs.
- Randall JE. 1963. Review of the hawkfishes (family Cirrhitidae). Proc. US Natl. Mus. **114**: 389-451.
- Randall JE. 1986. Family no. 214: Cirrhitidae. In MM Smith, PC Heemstra, eds. Smiths' sea fishes. Grahamstown, South Africa: Southern Book Publishers, pp. 664-666.
- Randall JE. 1995. Coastal fishes of Oman. Bathurst, Australia: Crawford House Publishing.
- Randall JE. 1998. Zoogeography of shore fishes of the Indo-Pacific region. Zool. Stud. **37**: 227-268.
- Randall JE. 1999. Report on fish collections from the Pitcairn Islands. Atoll Res. Bull. **461**: 1-36 + 14 unnumbered pp.
- Randall JE, GR Allen, RC Steene. 1990. Fishes of the Great Barrier Reef and Coral Sea. Bathurst, Australia: Crawford House Press.
- Randall JE, JL Earle. 2000. Annotated checklist of the shore fishes of the Marquesas Islands. Bishop Mus. Occas. Papers **66**: 1-39.
- Randall JE, PC Heemstra. 1991. Revision of Indo-Pacific groupers (Perciformes: Serranidae: Epinephelinae), with descriptions of five new species. Indo-Pac. Fishes **20**: 1-332.
- Randall JE, KKP Lim. 2000. A checklist of the fishes of the

- South China Sea. *Raffles Bull. Zool. Supplement* **8**: 569-667.
- Randolph S, M Snyder. 1993. The seafood list: FDA's guide to acceptable market names for seafood sold in interstate commerce. Washington DC: Government Printing Office.
- Reiner F. 1996. Catálogo dos peixes do Arquipélago de Cabo Verde. Publicações avulsas do IPIMAR No. 2.
- Richardson J. 1842. Contributions to the ichthyology of Australia. *Ann. Mag. Nat. Hist.* **9**: 15-31.
- Russel P. 1803. Descriptions and figures of two hundred fishes; collected at Vizagapatam on the coast of Coromandel. London: W. Bulmer.
- Russell BC. 1983. Annotated checklist of the coral reef fishes in the Capricorn-Bunker Group Great Barrier Reef Australia. Mackay, Qld, Australia: Great Barrier Reef Marine Park Authority.
- Sadovy Y, AS Cornish. 2000. Reef fishes of Hong Kong. Hong Kong: Hong Kong Univ. Press.
- Sanches JG. 1989. Nomenclatura Portuguesa de organismos aquáticos (proposta para normalização estatística). Publicações avulsas do I.N.I.P. No. 14. Lisboa, Instituto Nacional de Investigação das Pescas.
- Sanches JG. 1991. Catálogo dos principais peixes marinhos da República de Guiné-Bissau. Publicações avulsas do I.N.I.P. No. 16. Lisboa, Instituto Nacional de Investigação das Pescas.
- Schneider W. 1990. FAO species identification sheets for fishery purposes. Field guide to the commercial marine resources of the Gulf of Guinea. Rome: FAO.
- Schroeder RE. 1980. Philippine shore fishes of the western Sulu Sea. Manila: Bureau of Fisheries and Aquatic Resources and NMPC Books.
- Schuster WH, R Djajadiredja. 1952. Local common names of Indonesian fishes. Bandung, Indonesia: WV Hoeve.
- Seba A. 1759. *Locupletissimi rerum naturalium thesauri accurata descriptio et iconibus artificiosissimus expressio per universam physices historiam*, vol. 3. Amsterdam: Janssonius van Waesberge.
- Seret B, P Opic. 1997. Poissons de mer de l'Ouest Africain Tropical. Paris: Orstom.
- Siau Y. 1994. Population structure, reproduction and sex-change in a tropical East Atlantic grouper. *J. Fish Biol.* **44**: 205-211.
- Smith CL. 1990. Serranidae, *In* JC Quéro, JC Hureau, C Karrer, A Post, L Saldanha, eds. Check-list of the fishes of the eastern tropical Atlantic. Vol. 2. Paris: UNESCO, pp. 695-706.
- Smith JLB. 1969. Fishes of Inhaca. *In* W Macnae, M Kalk, eds. A natural history of Inhaca Island, Moçambique. Johannesburg: Witwatersrand Univ. Press, pp. 131-136.
- Thunberg CP. 1792. Åtskillige förut okände Fiskar af abborrlågtet. *Kongl. Vet. Acad. Nya Handl.* **13**: 141-143.
- Tyson M. 1771. A letter to the Rev. M. Lort, B. D. F. R. S. containing an account of a singular fish, from the South Seas, by the Rev. Mr. Micahel Tyson. *Phil. Trans.* **61**: 247-249.
- Walbaum JJ. 1788-1793. *Petri Artedi renovati. pars i et ii [and iii-v] i.e. Bibliotheca et philosophia ichthyologica.* 5 pts in 3 vols. Greifswald (Germany): Ant. Ferdin. Rose.
- Walbaum JJ. 1792. *Petri Artedi Sueci Genera Piscium.* In quibus systema totum ichthyologiae proponitur cum classibus, ordinibus, generum characteribus, specierum differentiis, observationibus plurimis. Emendata et aucta a Iohanne Iulio Walbaum. Pars III. *In* JJ Walbaum, ed. *Petri Artedi renovati.* Greifswald (Germany): Ant. Ferdin. Rose, pp. 1-723.
- Wass RC. 1984. An annotated checklist of the fishes of Samoa. NOAA Technical Report SSRF-781. US Department of Commerce, Washington D.C.
- Webb PV. 1981. Responses of northern anchovy, *Engraulis mordax* larvae to predation by a biting planktivore, *Amphiprion percula*. *Fish. Bull.* **79**: 727-735.
- Winterbottom R, AR Emery, E Holm. 1989. An annotated checklist of the fishes of the Chagos Archipelago, Central Indian Ocean. *R. Ont. Mus. Life Sci. Contrib.* **145**: 1-226.
- Wirtz P. 1992. São Tomé: eine paradies für taucher und meerwasser-aquarianer. *Das Aquarien* **271**: 21-26.