Boesemania microlepis (Bleeker, 1858)

Family: Sciaenidae (FC: 381)

Size: 100 cm SL (Sasaki, 2001: 174).

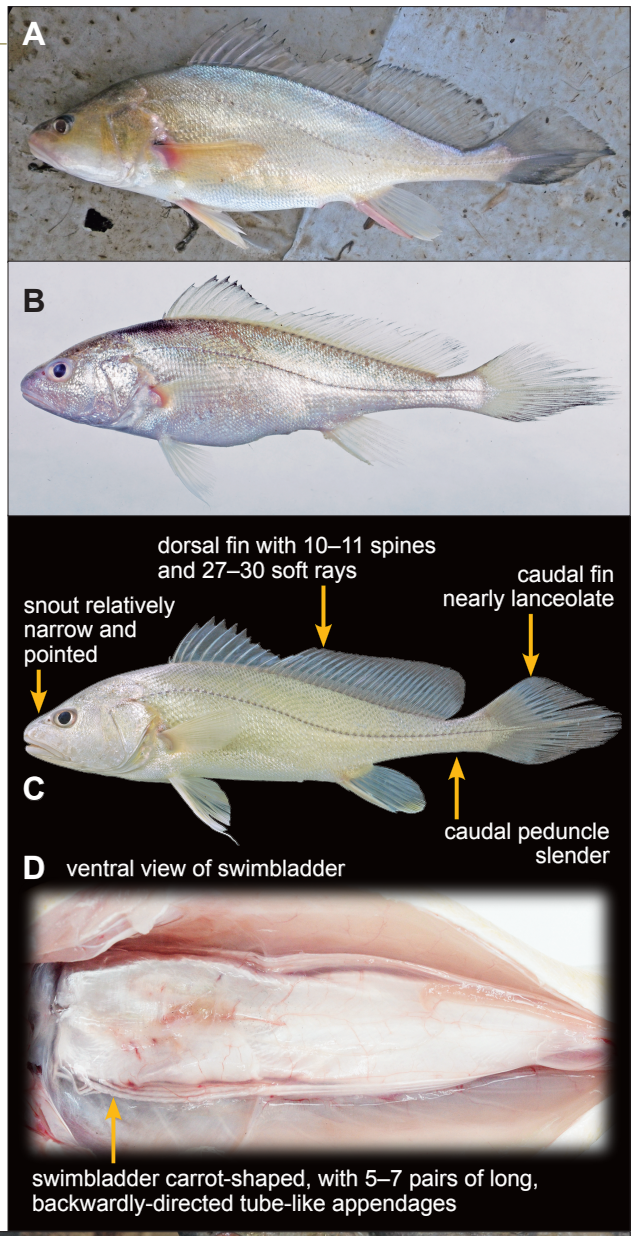
Distribution: Mekong Basin in Laos, Thailand, Cambodia, and Vietnam; Chao Phraya, Meklong and Bangpakong basins, Malay Peninsula and Sumatra.

Notes: A large-sized species of croakers, found in large rivers and lakes; it is commonly marketed fresh or salted (see photo E). The IUCN Red List of Threatened Species categorized this fish as "Near Threatened" in 2011.

Boesemania comprises only a single species *B. microlepis*, known from freshwater rivers and lakes in Southeast Asia. Within the Mekong sciaenids, *B. microlepis* is peculiar, since the species is commonly found in the freshwater areas of the middle and lower reaches (up to Luang Prabang in northern Laos) (*e.g.*, Baird *et al*., 2001); other Mekong sciaenids are found in brackish estuaries (and may enter into the adjacent freshwater areas) in Vietnam.

Boesemania microlepis has a simple carrot-shaped swimbladder with 5–7 pairs of long, backwardly-directed tube-like appendages, which originate from the anterior portion of swimbladder (Trewavas, 1977; Sasaki, 1999; see photo D), and is readily distinguished from the other Mekong sciaenids. In particular, *B. microlepis* resembles *Bahaba polykladiskos* (not shown in this book), also recorded from the Mekong Delta (*e.g.*, Vidthayanon, 2008), in general appearance including the slender caudal peduncle and a massive second anal-fin spine, but has a shorter second anal-fin spine (its length is 44–53% of head length *vs.* 55–63%) (Sasaki, 2001), as well as 5–6 pairs of long, backward-directed appendages of the swimbladder (*vs.* a single pair of appendages in *B. polykladiskos*).

Some ecological aspects and conservation perspectives of *Boesemania microlepis* in southern Laos were summarized by Baird *et al*. (2001). In the Indochinese region, this species had been frequently misidentified as *Pseudosciaena soldado* (= *Nibea soldado*, see next page) by several researchers (*e.g.*, Kawamoto *et al.*, 1972; Taki, 1974a; Mai & Nguyen, 1987; Mai *et al.*, 1992).





A) One of CTU-P collection (photo: KS); B) CTU-P 3529 (photo: LXT); C) CTU-P 4374 (photo: LXT); D) one of NSMT-P 119454 (photo: KS & HMV); E) marketed, salted and dried fish, not preserved (Phnom Penh, Cambodia, photo: KS)



Marketed sciaenids, *Nibea sordado* (indicated by red arrow) and species of *Johnius* (possibly *J. carouna* and/or *J. borneensis*, indicated by yellow arrow) (Bến Tre, Vietnam, photo: KS)

Nibea soldado (Lacepède, 1802)

Family: Sciaenidae (FC: 381)

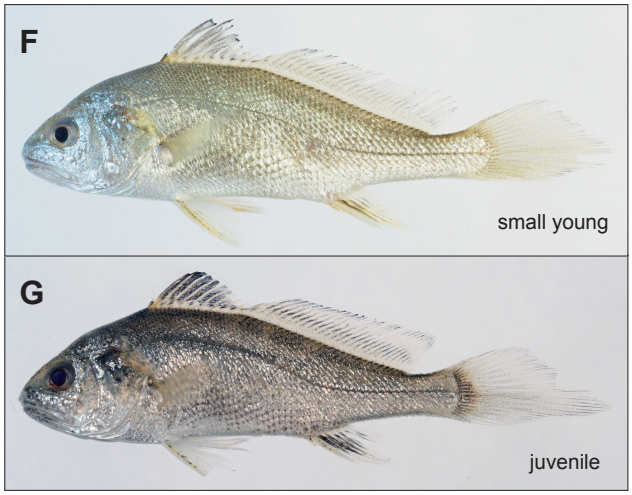
Size: 60 cm SL (Sasaki, 2001: 3162).

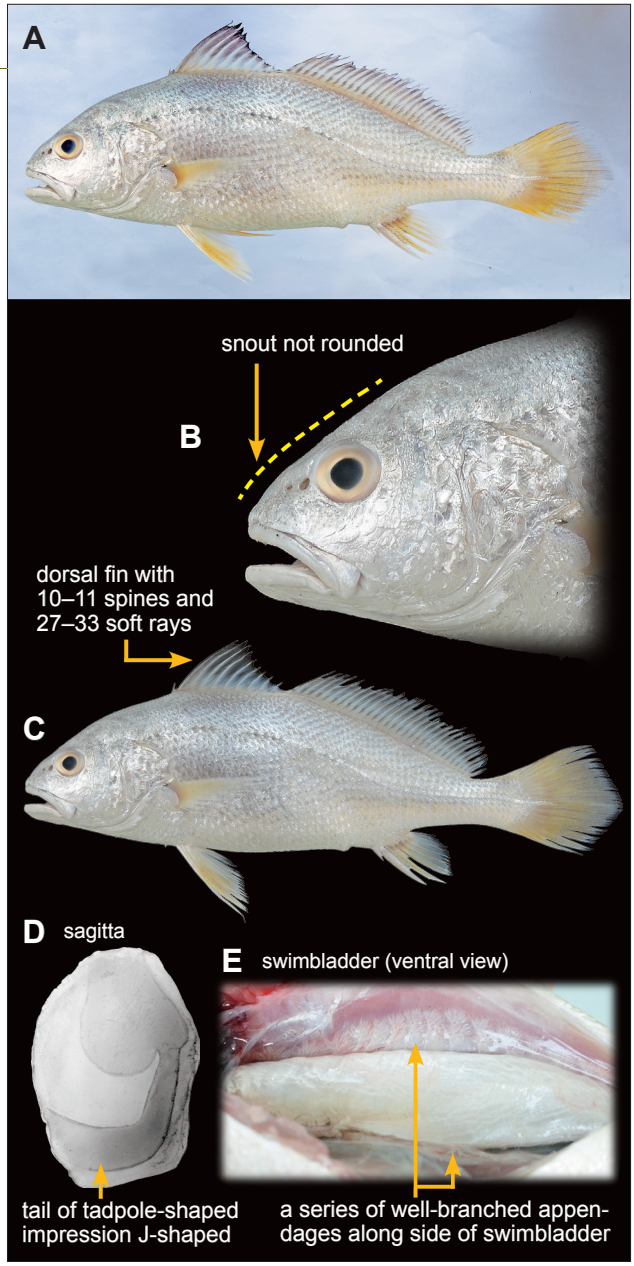
Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A relatively large-sized species of croakers, found in brackish estuaries and adjacent shallow coastal marine waters; it is commonly marketed fresh in the Mekong Delta of Vietnam.

Within the Mekong sciaenids, *Nibea soldado* is similar to species of *Johnius* (next page) in general appearance, in addition to have a swimbladder with many pairs of short and branched appendages along its sides (see photo E). *Nibea soldado* is, however, distinguishable from the species of *Johnius* by having a J-shaped tail of tadpole-shaped impression of sagitta (see photo D) (*vs.* tail is enlarged and deepened as a hollow cone in *Johnius*). Its relatively pointed snout may be useful in differentiating *N. soldado* from the species of *Johnius* (see photograph of marketed fish, above).

Several previous records of *Nibea soldado* (as *Pseudosciaena soldado*) from the Mekong (*e.g.*, Kawamoto *et al.*, 1972; Taki, 1974a; Mai & Nguyen, 1987; Mai *et al.*, 1992) includes misidentification of *Boesemania microlepis* (p. 373), judging from the photographs and illustrations.





A–C) CTU-P5400 (photo: HVM); D and E) CTU-P 5401 (photo: KS); F) CTU-P 2168 (photo: LXT); G) CTU-P 2170 (photo: LXT)

Johnius borneensis (Bleeker, 1851)

Family: Sciaenidae (FC: 381)

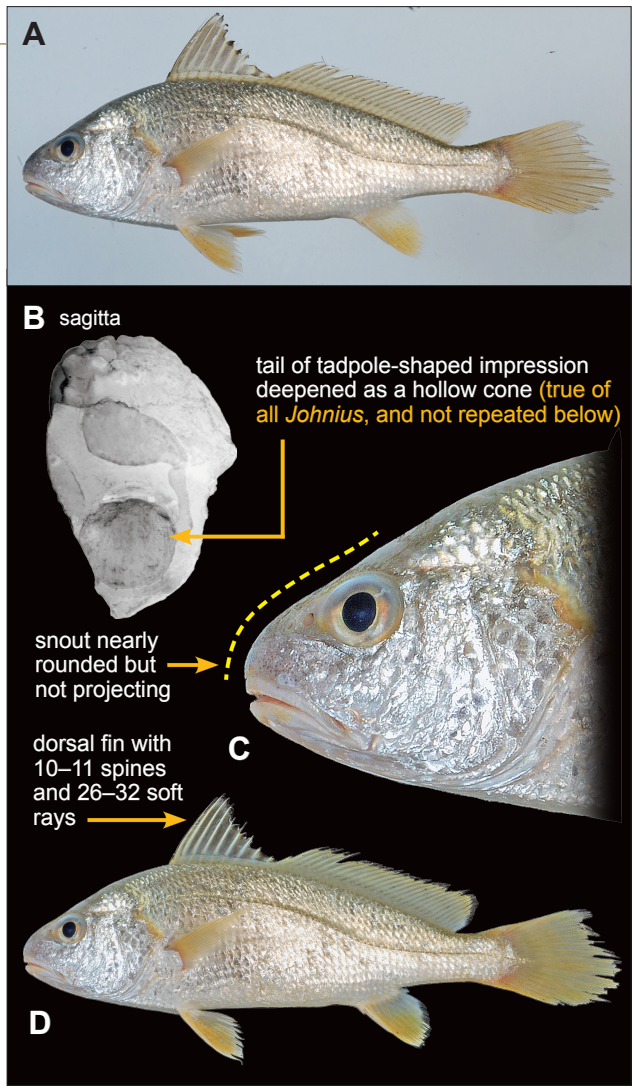
Size: 30 cm SL (Sasaki, 2001: 3154).

Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A medium-sized species of croakers, found in coastal marine waters and brackish estuaries; it is commonly collected from estuarine areas of the Mekong by trawl nets.

Croakers of *Johnius*, the most species-rich sciaenid genus in the Mekong, are confined to brackish estuaries of Vietnam in this basin. Although similar to croakers of some other genera in general appearance, their characteristic morphology of sagitta, such as the tail of tadpole-shaped impression is deepened as a hollow cone (see photo B, right), readily distinguishes fishes of *Johnius* from the other Mekong croakers. Many of *Johnius* have a rounded and projecting snout; some, for example the species shown on this page, have a non- or barely projecting snout. During our 2007–2013 surveys, at least 5 species of *Johnius* were collected from the Mekong: *J. belangerii*, *J. borneensis*, *J. carouna*, *J. plagiostoma*, *J. trachycephalus*, *J. weberi*. Rainboth *et al*. (2012) recorded an additional 2 species (*J. latifrons* and *J. macrorhynchus*) from the Mekong Delta.

Two subgroups (subgenera) are known in *Johnius* (Trewavas, 1977; Sasaki, 2001): subgenera *Jonieops* and *Johnius*. One of them, *Jonieops*, differs from the other subgenus *Johnius* in having widely-spaced teeth of the outer series in the upper jaw (*vs*. not widely spaced in the latter) and spaced and enlarged conical teeth of the inner series in the lower jaw (*vs*. lower jaw teeth are in a band and uniform in size or those of inner row molariform). The species of *Johnius* shown in this page, *J. borneensis* and *J. plagiostoma*, are placed in the subgenus *Jonieops*, and have enlarged conical teeth on the outer and inner series of the upper and lower jaws, respectively. The other species of *Johnius* shown in this book (next pages) belong to the subgenus *Johnius*.



A–D) CTU-P 2174 [photo: LXT (A, C, and D) and KS (B)]

Johnius plagiostoma (Bleeker, 1849)

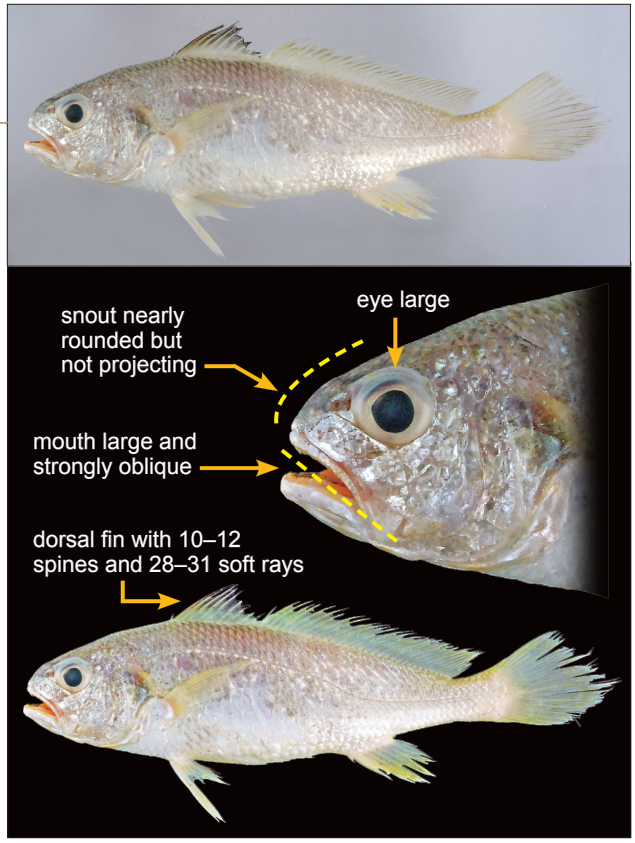
Family: Sciaenidae (FC: 381)

Size: 10 cm SL (Sasaki, 2001: 3157).

Distribution: Mekong Basin in Vietnam; western Indian Ocean to South China Sea, east to Mekong Delta and Borneo.

Notes: A small-sized species of croakers, found in coastal marine waters and brackish estuaries. The photographed specimen shown here was collected from a fish market at Bình Đại of Bến Tre, Vietnam

Its characteristic "face", including the large eyes and large and strongly oblique mouth, easily distinguishes *Johnius plagiostoma* from the other Mekong species of the genus *Johnius*. This is one of 2 species of the subgenus *Jonieops* known from the Mekong (see "Notes" of *J. borneensis*, above), and, in this basin, it seems to be much less common than the other one, *J. borneensis*.



CTU-P 4917 (photo: LXT)



Johnius carouna (Cuvier, 1830)

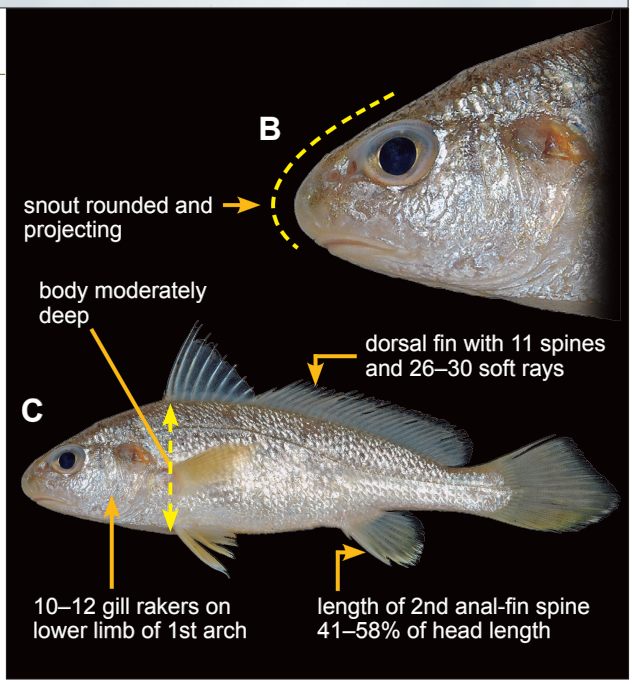
Family: Sciaenidae (FC: 381)

Size: 25 cm SL (Sasaki, 2001: 3142).

Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A relatively large-sized species of *Johnius* of the subgenus *Johnius* (see "Notes" of *Johnius borneensis*, p. 375), found in coastal marine waters and brackish estuaries; it is fairly common (but less than *Johnius trachycephalus*, next page) in estuarine areas of the Mekong.

Rainboth *et al*. (2012, pll. 78, fig. 1624) recorded an additional congener *Johnius latifrons* from the Mekong Delta. *Johnius latifrons* somewhat resembles *J. carouna* in general appearance, but has fewer gill rakers on the lower limb of the first arch (7–9 *vs.* 10–12 in *J. carouna*) and a shorter second anal-fin spine (its length is 26–37% of head length *vs.* 41–58%) (Sasaki, 1992, 2001).



A) CTU-P 1141 (photo: LXT); B and C) CTU-P 1067 (photo: LXT)

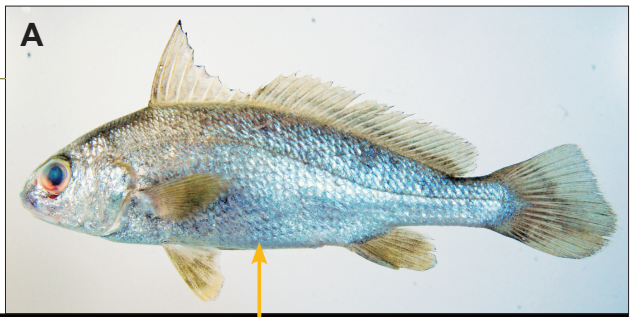
Johnius belangerii (Cuvier, 1830)

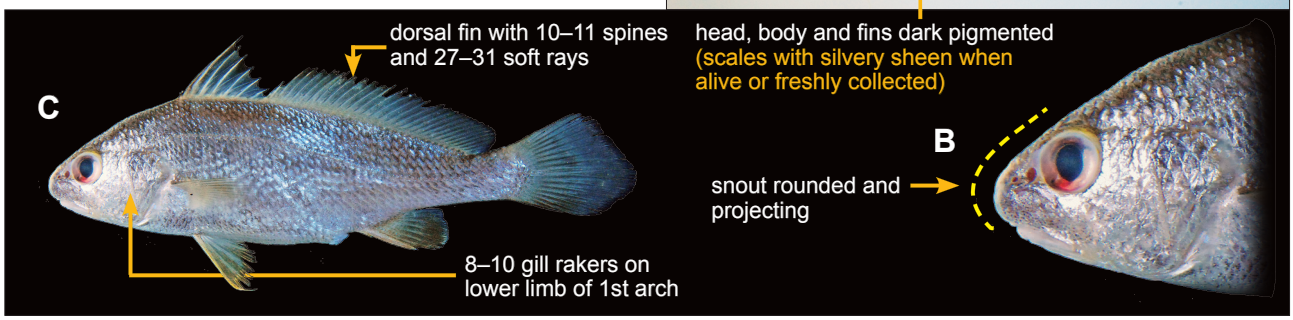
Family: Sciaenidae (FC: 381)

Size: 20 cm SL (Sasaki, 2001: 3141).

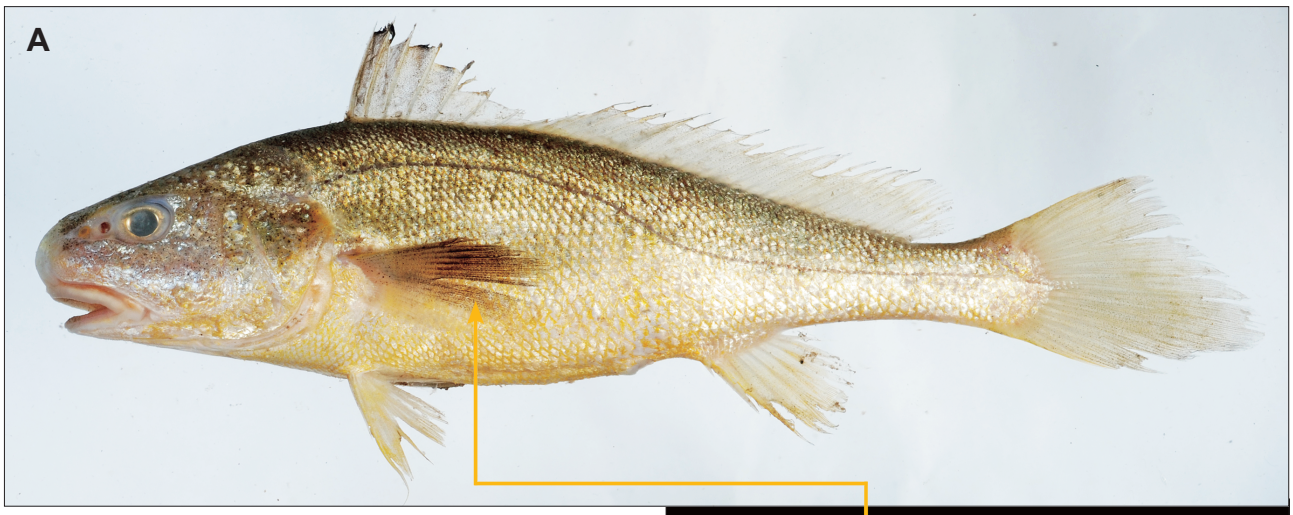
Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A relatively large-sized species of *Johnius* of the subgenus *Johnius* (see "Notes" of *Johnius borneensis*, p. 375), found in coastal marine waters and brackish estuaries. Although we were not able to collect any specimens during our field surveys in the Mekong in 2007–2013, Rainboth *et al*. (2012, pl.78, fig. 1619) provided a photograph of this species from an estuary at Tiền Giang, Vietnam. The photographed specimens shown here were collected from a fish market at the western coastal region of Cambodia (Koh Kong).





A) Non-Mekong specimen, IFREDI-P 6273 (Koh Kong, Cambodia, photo: PT); B and C) non-Mekong specimen, IFREDI-P 6274 (Koh Kong, Cambodia, photo: PT)



Johnius trachycephalus (Bleeker, 1851)

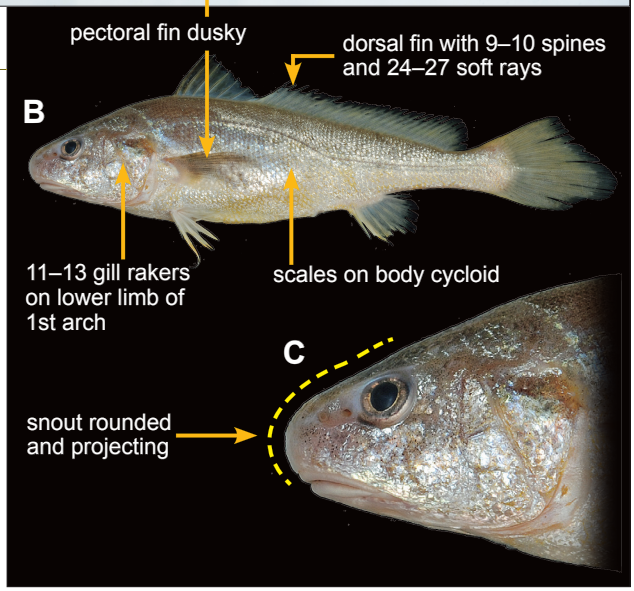
Family: Sciaenidae (FC: 381)

Size: 13 cm SL (Sasaki, 2001, 3151).

Distribution: Mekong Basin in Vietnam; Borneo, Sumatra, and Malay Peninsula.

Notes: A small-sized species of *Johnius* of the subgenus *Johnius* (see "Notes" of *Johnius borneensis*, p. 375), found in coastal marine waters and brackish estuaries; it is presumed to be one of the most common sciaenid fishes in/around estuarine areas of the Mekong, and is usually collected by small trawls.

Its relatively slender body and well peojecting snout readily distinguish *Johnius trachycephalus* from many of the other Mekong congeners. The body shape is similar to *J. weberi* (below), but *J. trachycephalus* has a dusky pectoral fin (*vs.* pale or pale yellow in *J. weberi*), usually 10 dorsal-fin spines (*vs.* 11), and no ctenoid scales on the body (*vs.* present).



A) CTU-P 1142 (photo: LXT); B and C) CTU-P 1066 (photo: LXT)

Johnius weberi Hardenberg, 1936

Family: Sciaenidae (FC: 381)

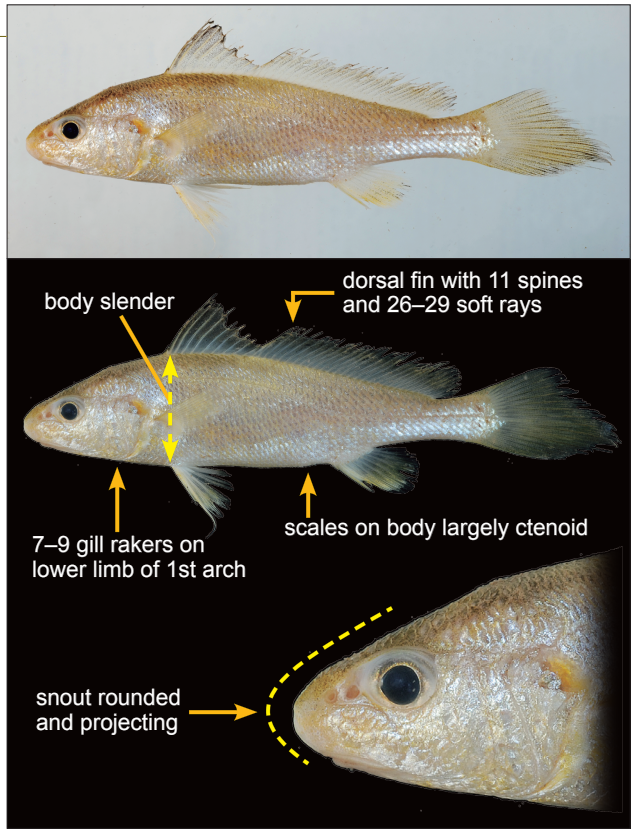
Size: 14 cm SL [Sasaki, 2001: 3153, as *Johnius* (*Johnius*) *weberi*].

Distribution: Mekong Basin in Vietnam; Gulf of Thailand, Sumatra, and Borneo.

Notes: A small-sized species *Johnius* of the subgenus *Johnius* (see "Notes" of *Johnius borneensis*, p. 375), found in coastal marine waters and brackish estuaries; it is frequently trawled together with common congener *Johnius trachycephalus* (above) in the Vietnamese Mekong.

Its slender body and projecting snout resemble those of *J. trachycephalus*, but has a non-dusky pectoral fin (*vs.* dusky in *J. trachycephalus*), 11 dorsal-fin spines (*vs.* 9–10), ctenoid scales on the body (*vs.* cycloid scales on body), and 7–9 gill rakers on the lower limb of the first gill arch (*vs.* 11–13) (Sasaki, 2001).

Trewavas (1977: 410) listed *Sciaena* (*Corvina*) *novaehollandiae* of Steindachner (1866) (= *Johnius novaehollandiae*) as a possible synonym of *Johnius weberi*. Subsequently Johnson (1999: 737) also suggested that *J. weberi* is a junior synonym of *J. novaehollandiae*; in their pictorial book of fishes of the Mekong Deta, Tran *et al.* (2013: 110) provisionally followed Johnson's synonymy. We here treat *J. weberi* as a distinct species, following K. Sasaki (Kochi University, Japan; pers. comm.).



CTU-P 1416 (photo: LXT)

Panna microdon (Bleeker, 1849)

Family: Sciaenidae (FC: 381)

Size: 30 cm SL (Sasaki, 2001: 3166).

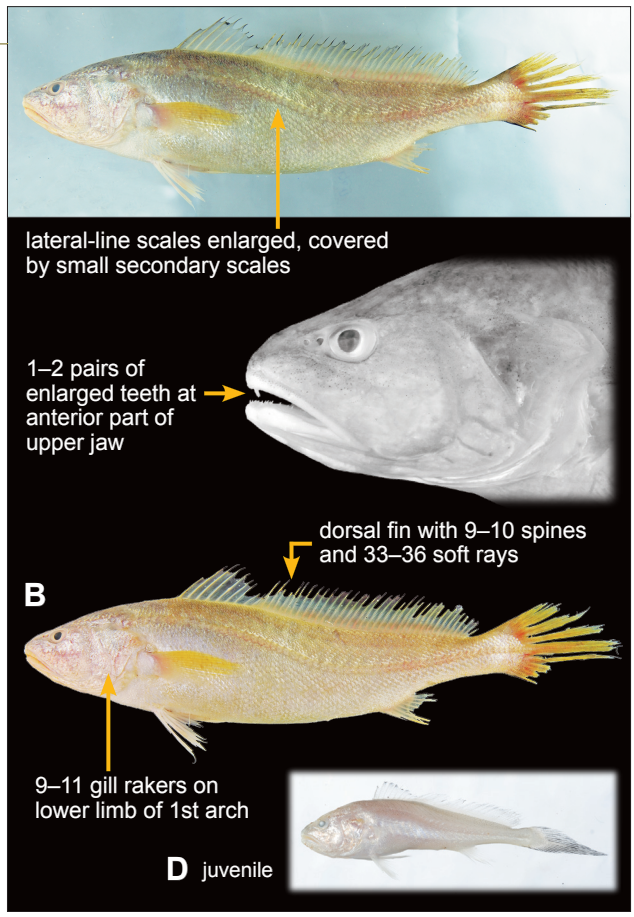
Distribution: Mekong Basin in Vietnam; Gulf of Thailand, Malaysia, and Indonesia.

Notes: A relatively large-sized species of croakers, found in coastal marine waters and brackish estuaries.

The Indo-West Pacific sciaenid genus *Panna* was revised by Sasaki (1995), who recognized 3 species within it: *P. heterolepis*, *P. microdon*, and *P. perarmatus*. Of these, 2 species (*P. microdon* and *P. perarmatus*) are known from the Western Pacific, including the Mekong Delta. These 2 species of *Panna* can be distinguised from the other sciaenid fishes in the Mekong by their higher counts of soft dorsal-fin ras (33–44 *vs.* less than 31). The morphology of sagitta and swimbladder is somewhat similar to that of *Boesemania* (p. 373), but the swimbladder has only a single pair of tube-like appendages directed posteriorly (*vs.* 5 or 6 pairs in *Boesemania*).

During our field surveys in the Mekong in 2007–2013, we collected a single juvenile (photo D) of one of these 2 species, *P. microdon*, from an estuarine area at Sóc Trăng, Vietnam; some adults (photos A–C) were found at fish markets in coastal regions of the delta. *Panna microdon* differs from *P. perarmatus* in having nearly pointed snout (*vs.* snout is steeply rounded in *P. perarmatus*), 9–10 dorsal-fin spines (*vs.* 6–7), 33–36 dorsal-fin soft rays (*vs.* 42–44), and 9–11 gill rakers on the lower limb of the first arch (*vs.* 12–14).

Panna perarmatus was described by Chabanaud (1926) from the Gulf of Thailand and Indochina; Sasaki (1995) noted the type locality as "Gulf of Thailand and Viet Nam". Any additional specimens appear to be not known to date from Vietnam.



A–C) CTU-P 4586 (photo: LXT); D) CTU-P 1330 (photo: LXT)

Chrysochir aureus (Richardson, 1846)

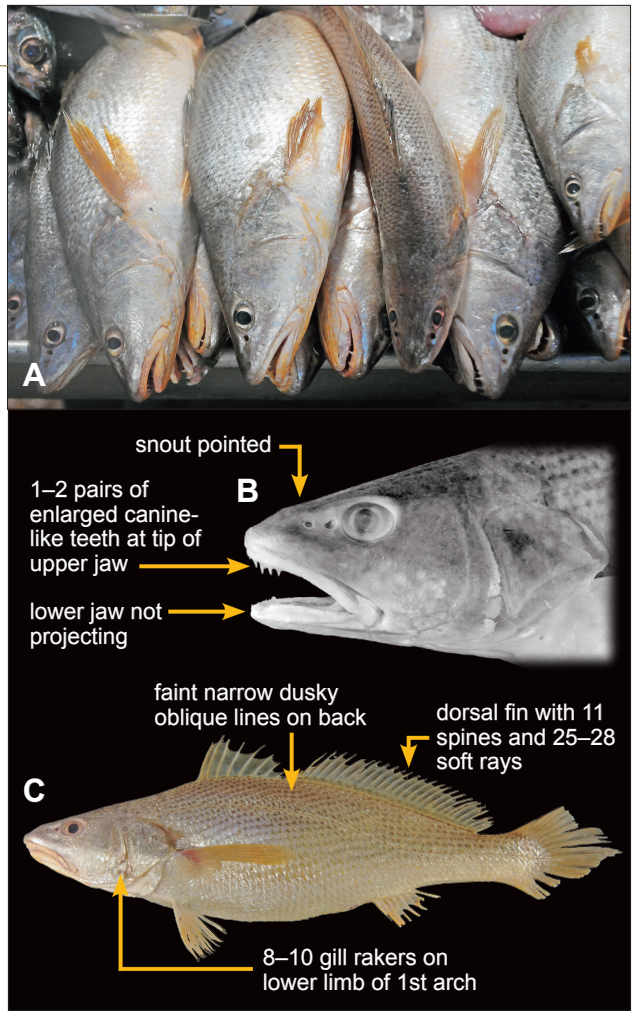
Family: Sciaenidae (FC: 381)

Size: 30 cm SL (Sasaki, 2001: 3137).

Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A relatively large-sized species of croakers, found in coastal marine waters; it is commonly seen in fish markets around the coastal regions of the Mekong Delta. During our field surveys of the Mekong fishes in 2007–2013, a single young specimen was trawled from a brackish estuary at Tiền Giang, Vietnam, together with many other brackish-water fishes. The photographed specimens shown here are the marketed adults.

Chrysochir comprises a single species *C. aureus*. This species is readily distinguished from the other sciaenid fishes of the Mekong by its pointed snout, 1–2 pairs of enlarged canine-like teeth at the tip of the upper jaw, and faint narrow dusky oblique lines on the dorsal part of body.



A) Marketed fish, not preserved (Bến Tre, Vietnam, photo: KS); B and C) CTU-P 4595 [photo: KS (B) and LXT (C)]



Marketed fish of *Chrysochir aureus* (top 1) and *Otolithes ruber* (bottom 3) (Sóc Trăng, Vietnam, photo: KS)

Otolithes ruber (Bloch & Schneider, 1801)

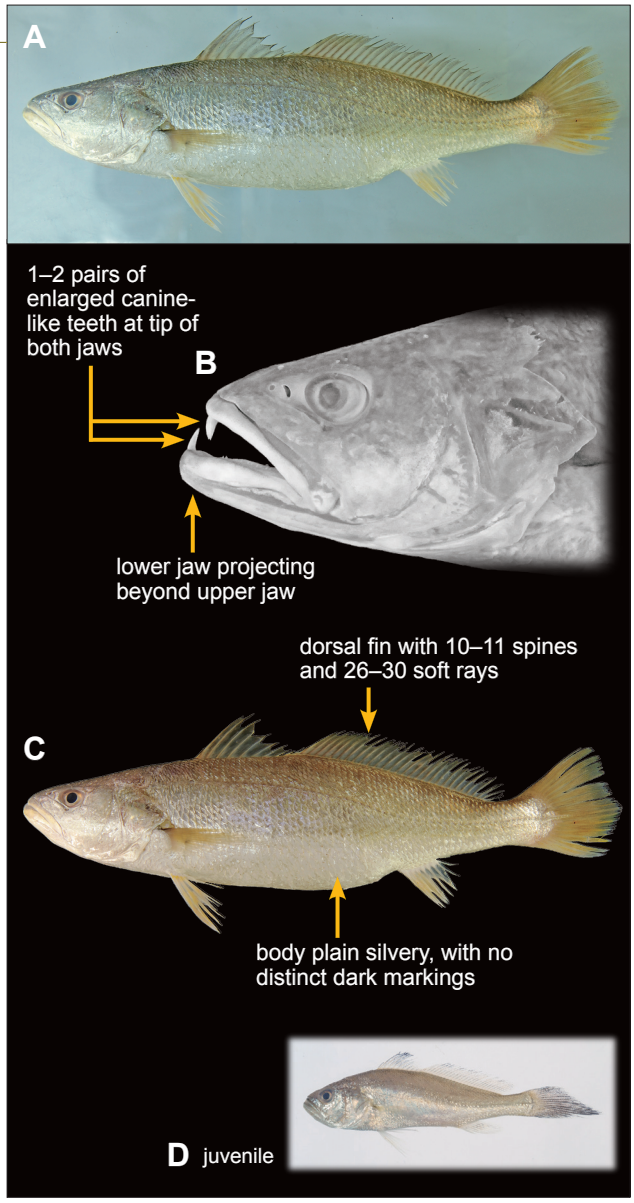
Family: Sciaenidae (FC: 381)

Size: 70 cm SL (Sasaki, 2001: 3164).

Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A large-sized species of croakers, found in coastal marine waters; it is commonly seen at fish markets around coastal regions of the Mekong Delta, together with similar-sized *Chrysochir aureus* (see above photograph). Several juvenile specimens (one of them is shown in photo D) were collected from a brackish river in the Mekong Delta around mangrove areas at Trà Vinh, Vietnam; it suggests that this species enters brackish estuaries at least in the early-life stages.

Its projecting lower jaw and strong canine-like teeth at tip of both jaws readily distinguishes *Otolithes ruber* from the other Mekong sciaenid fishes. Rainboth *et al.* (2012) recorded 2 species of the similar-looking genus *Pterotolithus* (having a projecting lower jaw and enlarged canine-like teeth at the tip of both jaws, like *Otolithes*) from their "Greater Mekong Ecosystem"; one, *P. lateoides*, is based on a photographed specimen from Mỹ Tho market in Tiền Giang of Vietnam, and the other one, *P. maculatus*, is referred from Orsi's (1974, as *Otolithes maculatus*) record from Vietnam (its detailed locality was not specified by Orsi). Although we could not confirm any specimens of these 2 species of *Pterotolithus* from the Mekong, these are expected from brackish estuaries in this region. *Pterotolithus* can be distinguished from *Otolithes* by having a series of well-branched appendages along the lateral side of the swimbladder extending onto the dorsolateral surface of the bladder (*vs.* not widely lapping dorsal surface of the bladder in *Otolithes*) and a J-shaped tail of tadpole-shaped impression of the sagitta (*vs.* tail of the tadpole-shaped impression is only slightly curved, not the distinct J-shape) (Sasaki, 2001). Furthermore, *P. maculatus* differs from *O. ruber* in having many small dark spots on the upper part of the body (*vs.* not black spots on the body in *O. ruber*) and 30–34 soft dorsal-fin rays (*vs.* 26–30); *P. lateoides* is superficially similar to *O. ruber*, but has a body covered by ctenoid scales (*vs.* scales on the body largely cycloid, with a few ctenoid scales on the lower part of the caudal peduncle in *O. ruber*) (Sasaki, 2001).



A–C) CTU-P 4594 [photo: LXT (A and C) and KS (B)]; D) CTU-P 2187 (photo: LXT)

Threadfins

Fishes of the family Polynemidae have 3 or more thread-like, free lower rays of the pectoral fin (pectoral filaments), and are commonly known as "threadfins".

The family was revised by a series of thorough taxonomic studies carried out by H. Motomura (Kagoshima University, Japan) and his collaborators, who recognized 43 species of 8 genera in the world (*e.g.*, Motomura, 2004a, b; Motomura & Tsukawaki, 2006; Lim *et al.*, 2010). Of these, at least 5 species (including one divided into 2 subspecies) of 3 genera are known from the Mekong (Motomura & Tsukawaki, 2006; our surveys in 2007–2013); all but *Polynemus bidentatus* and *P. melanochir dulcis* (see "Notes" of *P. melanochir*, p. 382) are shown in this book. Vidthayanon (2008) recorded 6 additional species (*viz.*, *Eleutheronema tridactylum*, *Filimanus heptadactylum*, *Leptomelanosoma indicum*, *Polydactylus plebeius*, *Polydactylus siamensis*, and *Polynemus multifilis*) from the Mekong Delta, but the records need confirmation; these records of Vidthayanon (2008) from the Mekong Delta were not adopted in his subsequent paper of fishes of the "Greater Mekong Ecosystem" (Rainboth *et al.*, 2012). Another ambiguous fish recorded from the Mekong is "*Polynemus* sp." of Rainboth *et al.* (2012, pl. 77, fig. 1612) from Hậu Giang of southern Vietnam (Mekong Delta); judging from the photograph, it appears to be the common species *P. aquilonaris* (p. 383).



Polydactylus sextarius (Bloch & Schneider, 1801)

Family: Polynemidae (FC: 380)

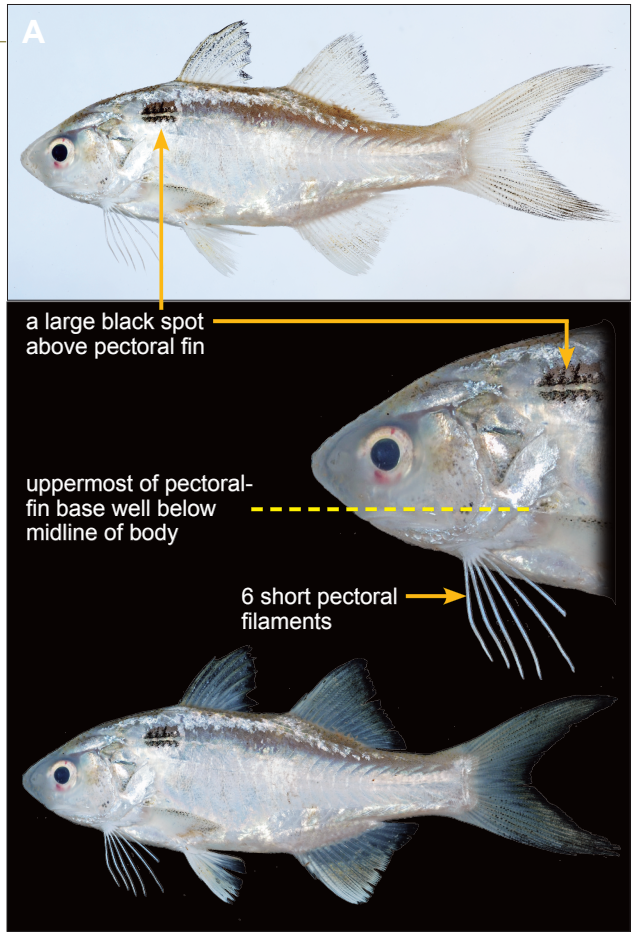
Size: 17 cm SL (Motomura, 2004: 75).

Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A medium-sized species of threadfins, found in coastal marine water sand estuaries; it is commonly collected from estuarine areas of the Mekong by trawls, but is, due to its small body size, not so common in fish markets around those areas.

Polydactylus is the most species-rich polynemid genus, comprising 20 species from all oceans, except for the Red Sea and Mediterranean (Motomura, 2004a, b). During our field surveys in the Mekong in 2007–2013, we could collect only a single species *P. sextarius* by trawl nets from brackish estuaries. Vidthayanon (2008) recorded 2 additional congeners (*P. plebeius* and *P. siamensis*) from the Mekong Delta, but the records need confirmation (see above column).

The species of *Polydactylus* with a large black spot were reviewed by Motomura & Iwatsuki (2001), who recognized 5 species from the Indo-West Pacific. Of these, 2 species, *Polydactylus microstomus* and *P. sextarius* are known from the Western Pacific. *Polydactylus sextarius* differs from *P. microstomus* (not recorded from the Mekong) in having 6 pectoral filaments (*vs.* 5 in *P. microstomus*) (Motomura & Iwatsuki, 2001; Motomura, 2004a).



CTU-P 1116 (photo: LXT)

Eleutheronema tetradactylum (Shaw, 1804)

Family: Polynemidae (FC: 380)

Size: 200 cm TL (Motomura, 2004: 18).

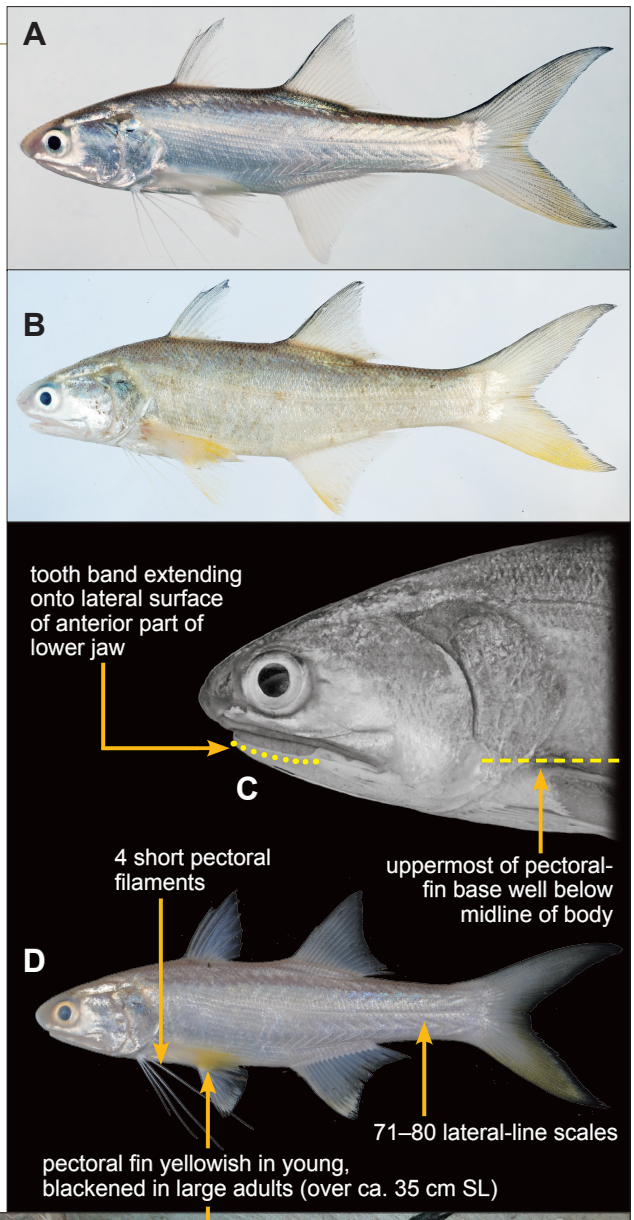
Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A large-sized species of threadfins, found in coastal marine waters; it commonly enters brackish estuaries particularly the juveniles and young. *Eleutheronema tetradactylum* is the most common species of the family at estuarine areas of the Mekong Delta.

Eleutheronema is unique within the family by having a tooth band extending onto the lateral surface of the anterilar part of the lower jaw (see photo C); the low count of pectoral filaments (3 or 4) also distinguishes *Eleutheronema* from the other Indo-West Pacific threadfins (with 5 or more pectoral filaments).

Eleutheronema comprises 3 species from the Indo-West Pacific (Motomura *et al.*, 2002). Of these, 2 species, *E. tetradactylum* and *E. tridactylum*, were recorded from the Mekong Delta by Vidthayanon (2008). *Eleutheronema tetradactylum* is readily distinguished from *E. tridactylum* by having 4 pectoral filaments (*vs.* 3 in *E. tridactylum*). During our field surveys in the Mekong in 2007–2013, however, we were not able to collect any specimens of *E. tridactylum*, although *E. tetradactylum* was commonly seen at estuarine areas. Vidthayanon's (2008) record of *E. tridactylum* from the Mekong Delta was not adopted in his subsequent paper of fishes of the "Greater Mekong Ecosystem" (Rainboth *et al.*, 2012), and thus needs confirmation. According to the distribution map of *E. tridactylum* shown by Motomura (2004: 20, fig. 40), the species has not been confirmed from the Mekong Delta and adjacent marine waters.

The other congener *Eleutheronema rhadinum* is endemic to East Asian waters, south to Hải Phòng, northern Vietnam (Motomura, 2003); it is thus not expected from the Mekong. *Eleutheronema rhadinum* shares 4 pectoral filaments with *E. tetradactylum*, but has 82–95 lateral-line scales (*vs.* 71–80 in *E. tetradactylum*) and a blackened pectoral fin (*vs.* yellowish, except for large specimens over *ca*. 35 cm SL) (Motomura *et al.*, 2002).





A) CTU-P 2583 (LXT); B) CTU-P 1091 (photo: LXT); C) marketed fish, not preserved (Bến Tre, Vietnam, photo: KS); D) CTU-P 1350 (photo: LXT); E) marketed fish, not preserved (Bến Tre, Vietnam, photo: KS)

Polynemus melanochir melanochir
Valenciennes, 1831

Family: Polynemidae (FC: 380)

Size: 20 cm SL (Motomura, 2004: 90).

Distribution: Mekong Basin in Cambodia and Vietnam; Kalimantan.

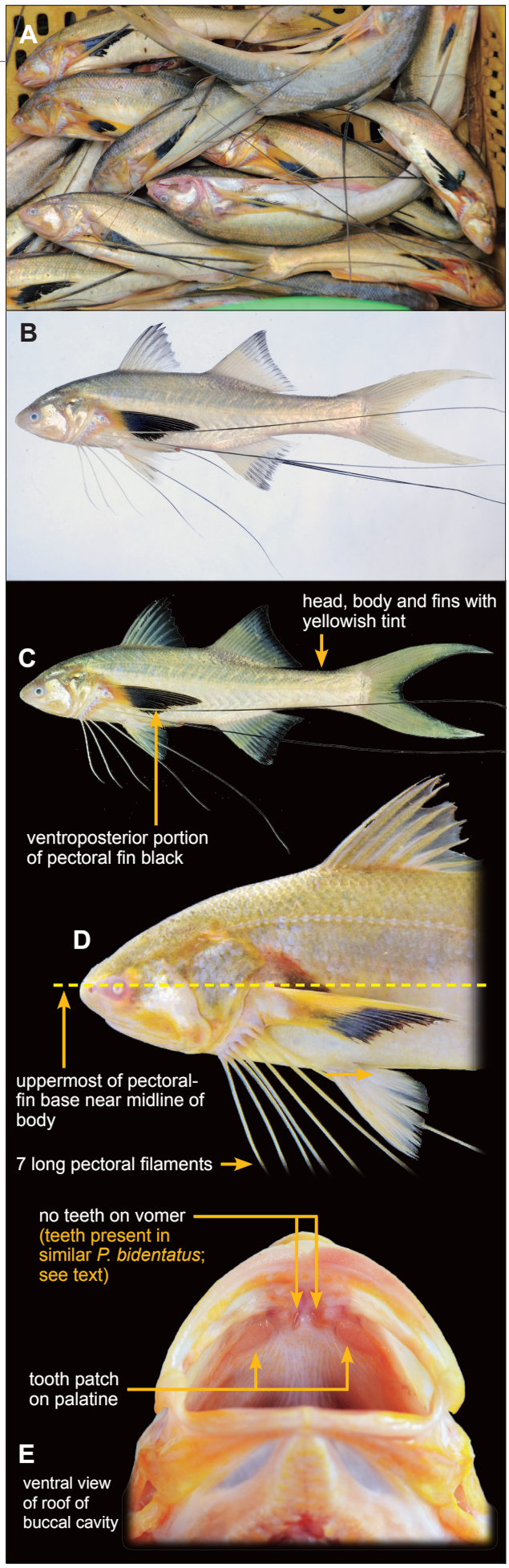
Notes: A medium-sized threadfins, found in turbid large rivers; it is commonly fished by trawl nets from freshwater rivers of the Mekong Delta.

Polynemus is distinguished from the other polynemid genera in the Mekong by having extremely long pectoral filamnents, and uppermost of pectoral-fin base near midline of the body. At least three species of *Polynemus* are found in the Mekong (Motomura & Tsukawaki, 2006): *P. aquilonaris* (next page), *P. bidentatus* (see below), and *P. melanochir*. Of these, *P. melanochir* is undoubtedly most common in freshwater rivers of the Mekong Delta.

Motomura & Sabaj (2002) recognized 2 subspecies of *P. melanochir*: *P. melanochir dulcis* and *P. melanochir melanochir*. Although these 2 subspecies look very similar each other, *P. melanochir dulcis* has slightly longer snout (its length 7% of SL *vs.* 5–6% in *P. melanochir melanochir*) and shorter upper caudal-fin lobe (34–35% *vs.* 34–44%) (Motomura & Sabaj, 2002). According to Motomura & Tsukawaki (2006), *P. melanochir dulcis*, endemic to Tonle Sap Lake in Cambodia, has never been collected since 1970, and was possibly extinct. Identification of Vidthayanon's (2008: 197, fig. 271) photographed specimen of *P. melanochir dulcis* thus needs confirmation. During our surveys on 2007–2013, we did not collect any specimens of *P. melanochir* from the Tonle Sap Lake, where its congener *P. aquilonaris* (next page) is common; 3 specimens of *P. melanochir* from Kampong Svay of Kampong Thom, Cambodia (IFREDI-P 2832), housed in the IFReDI, need check the identification. Similarly, Lim *et al.* (1999) recorded *P. melanochir* (as *P. borneensis*) from the Tonle Sap River, but not from Tonle Sap Lake.

Motomura & Tsukawaki (2006) described a new species *Polynemus bidentatus* based on a single specimen (153.4 mm SL) from the Mekong Dalta in Mỹ Tho, Vietnam. The species is similar to 2 subspecies of *P. melanochir* by having black ventroposterior portion of pectoral fin, but has a pair of vomerine tooth patches (*vs.* vomer edentate in the latter). We have examined numerous specimens of *Polynemus* with a black pectoral fin from the Cambodian and Vietnmese Mekong, and confirmed that all these specimens lack the vomerine tooth patch; namely, all of our specimens are identified as *P. melanochir*. It suggests that *P. bidentatus* appears to be rare. Ng & Rainboth (2011: 65) included *P. bidentatus* in the list of fishes collected by them from the Mekong Delta; this record, however, needs confirmation, since the similar-looking *P. melanochir melanochir*, which is very common in the Mekong Delta, is not found in their list. Note that the photographed specimens of *P. bidentatus* (Bangpakong River, Thailand) and *P.* sp. (Long Xuyen, Vietnam) in Rainboth *et al*. (2012, pl. 77, figs 1609 and 1612) appear to be identical to *P. aquilonaris*.

Rainboth (1996b) recorded 4 species of *Polynemus*, *viz.*, *P. borneensis*, *P. dubius*, *P. longipectoralis*, and *P. multifilis*, from the Mekong; all of these records were, however, subsequently rejected by Motomura & Tsukawaki (2006). Namely, Motomura & Tsukawaki (2006) re-identified Rainboth's *P. borneensis* as *P. melanochir*, and *P. dubius* and *P. longipectoralis* as *P. aquilonaris*. And, they concluded that *P. multifilis* does not occur in the Mekong (see "Notes" of *P. aquilonaris*, next page).



A) Freshly-collected fish, not preserved (Sóc Trăng, Vietnam, photo: KS); B and C) CTU-P 1124 (photo: LXT); D) IFREDI-P 5371 (photo: PT); E) one of NSMT-P collection (photo: KS)



Polynemus aquilonaris Motomura, 2003

Family: Polynemidae (FC: 380)

Size: 16 cm SL (Motomura, 2004: 82).

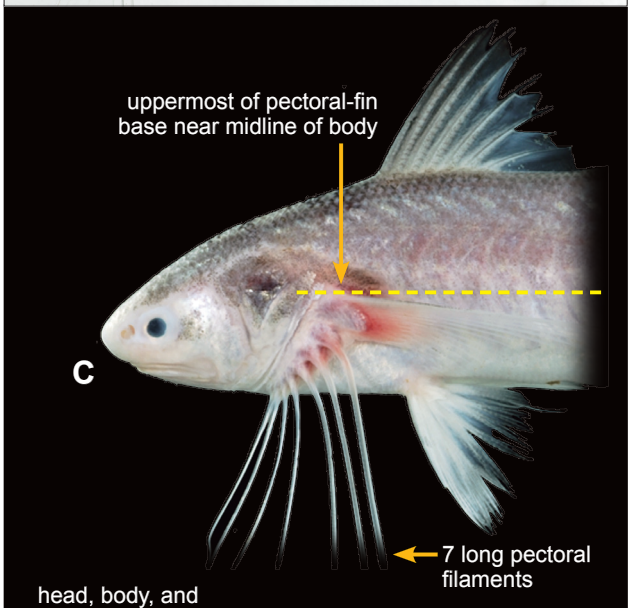
Distribution: Mekong Basin in southern Laos, Thailand, Cambodia, and Vietnam; Chao Phraya Basin.

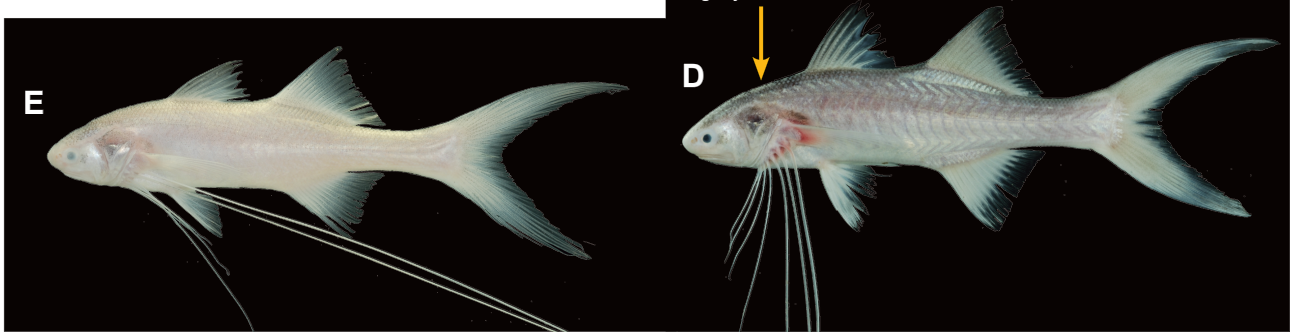
Notes: A medium-sized species of threadfins, found in large freshwater rivers and lakes; it is commonly taken by trawl nets in freshwater areas, but appears to be uncommon in tidal estuaries (where the congener *P. melanochir melanochir* is common).

Polynemus aquilonaris is readily distinguished from the other congeners in the Mekong, *viz.*, *P. bidentatus*, *P. melanochir melanochir*, and *P. melanochir dulcis*, by having non-blackened (actually translucent or whitish) pectoral fin.

Rainboth (1996b: 188) and Vidthayanon (2008: 286) reported another pale-grayish congener *Polynemus multifilis* from the Mekong Delta, with no indication of voucher specimens. Motomura & van Oijen (2003), however, could not confirm any specimens of *P. multifilis* from the Mekong in their extensive research on museum specimens; subsequently Motomura & Tsukawaki (2006: 463) concluded, "we believe that *P. multifilis* does not occur in the Mekong River basin." Likewise, during our field surveys in 2007–2013, we were not able to collect *P. multifilis* from the Mekong. Note that *P. multifilis* is found in the Chao Phraya Basin [Motomura & van Oijen, 2003; Motomura, 2004; our surveys (RLIKU 3514)]. *Polynemus multifilis* is readily distinguished from *P. aquilonaris* by having, *e.g.*, 13–15 pectoral filamens (*vs.* 7 in *P. aquilonaris*) (Motomura, 2004).







A) Marketed fish, not preserved (Tonle Sap Lake, Cambodia, photo: KS); B–D) CTU-P 3752 (photo: LXT); E) IFREDI-P 3307 (photo: PT)

Terapon perches

Members of the family Terapontidae are typical perch-like fishes, known from coastal marine waters and brackish and freshwater rivers in the Indo-West Pacific. Vidthayanon (2008) recorded 4 species of the terapon perches (*Pelates quadrilineatus*, *Terapon jarbua*, *T. puta*, and *T. theraps*) from the Mekong Delta; 2 of them are shown in this book.



Terapon jarbua (Forsskål, 1775)

Family: Terapontidae (FC: 399)

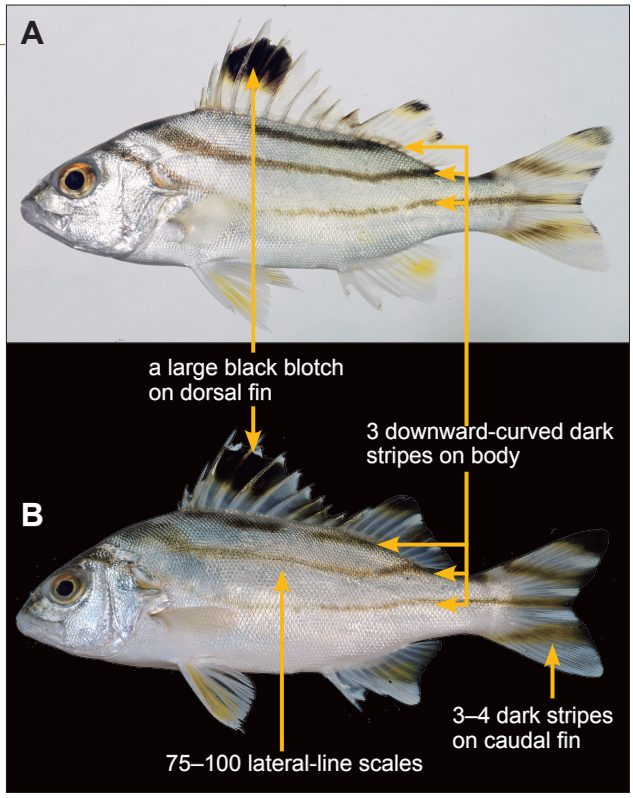
Size: 35 cm TL (Vari, 2001: 3314).

Distribution: Mekong Basin in Vietnam; Indo-Pacific.

Notes: A medium-sized species of perch-like fishes, found in coastal marine waters, brackish estuaries, and adjacent freshwater areas; it is commonly seen at/around estuarine areas of the Vietnamese Mekong.

Terapon resembles *Pelates* (not shown in this book) in general appearance (particularly the striped body), but has some dark stripes on the caudal fin (*vs.* absent in *Pelates*). *Terapon* comprises 3 species (*viz.*, *T. jarbua*, *T. puta*, and *T. theraps*) (Vari, 1978), all of which have been recorded from the Mekong Delta (Vidthayanon, 2008). Of these, *Terapon jarbua* is readily distinguished from the other 2 congeners by having 3 downward-curved dark stripes on the body. See also "Notes" of *T. theraps*, below.





A) CTU-P 3395 (photo: LXT); B) CTU-P 1072 (photo: LXT); C) CTU-P 2290 (photo: LXT)

Terapon theraps Cuvier, 1829

Family: Terapontidae (FC: 399)

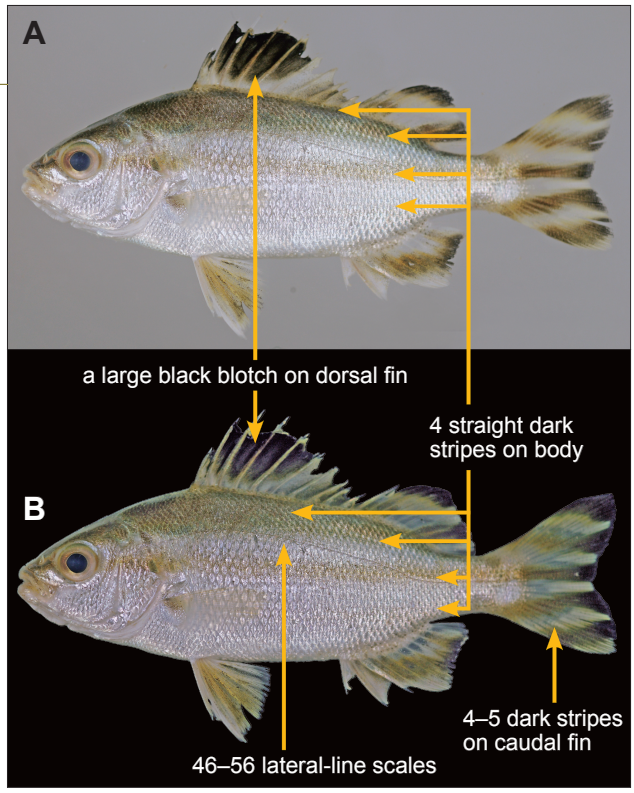
Size: 32 cm TL (Vari, 20001: 174).

Distribution: Mekong Basin in Vietnam; Indo-Pacific.

Notes: A medium-sized species of perch-like fish, found in coastal marine waters; it sometimes enters brackish estuaries. The photographed specimen shown here was collected from a shallow waters on broad exposed mudflat around brackish estuary at Bạc Liêu, southern Vietnam.

Terapon theraps is similar to *T. jarbua* (above), but the body stripes are straight (not curved). Although the other congener, *Terapon puta* (not shown in this book), also has some straight dark stripes on body, *T. puta* is a slender species with 70–85 lateral-line scales (*vs.* 46–56 in *T. theraps*) (Vari, 2001)

Kottelat (2013c) placed this species in the other genus *Eutherapon* with no indication of the reason. We here follow Vari (1978) on the generic assignment.



CTU-P 4636

Archerfishes

Fishes of the family Toxotidae are commonly known as "archerfishes", due to their famous "shooting" ability; namely the archerfishes, usually found beneath water surface, eject squirts of water from their mouth, and shoot off a terrestrial insect from overhanging vegetation. The family comprises a single genus *Toxotes* with 10 similar-looking species from mangrove areas at/around brackish estuaries and freshwater rivers in the Indo-West Pacific (Allen, 1978, 2004; Kottelat & Tan, 2018). Although Vidthayanon (2008: 286) recorded 3 species [*T. chatareus*, *T. jaculatrix*, and *T. microlepis* (see below)] from the Mekong Delta, we could collect only a single species *T. chatareus* from the Indochinese Mekong, during our field surveys in 2007–2013.

Toxotes chatareus (Hamilton, 1822)

Family: Toxotidae (FC: 388)

Size: 20.7 cm SL (Kottelat, 2001a: 152).

Distribution: Mekong Basin in Laos, Thailand, Cambodia, and Vietnam; Indo-West Pacific.

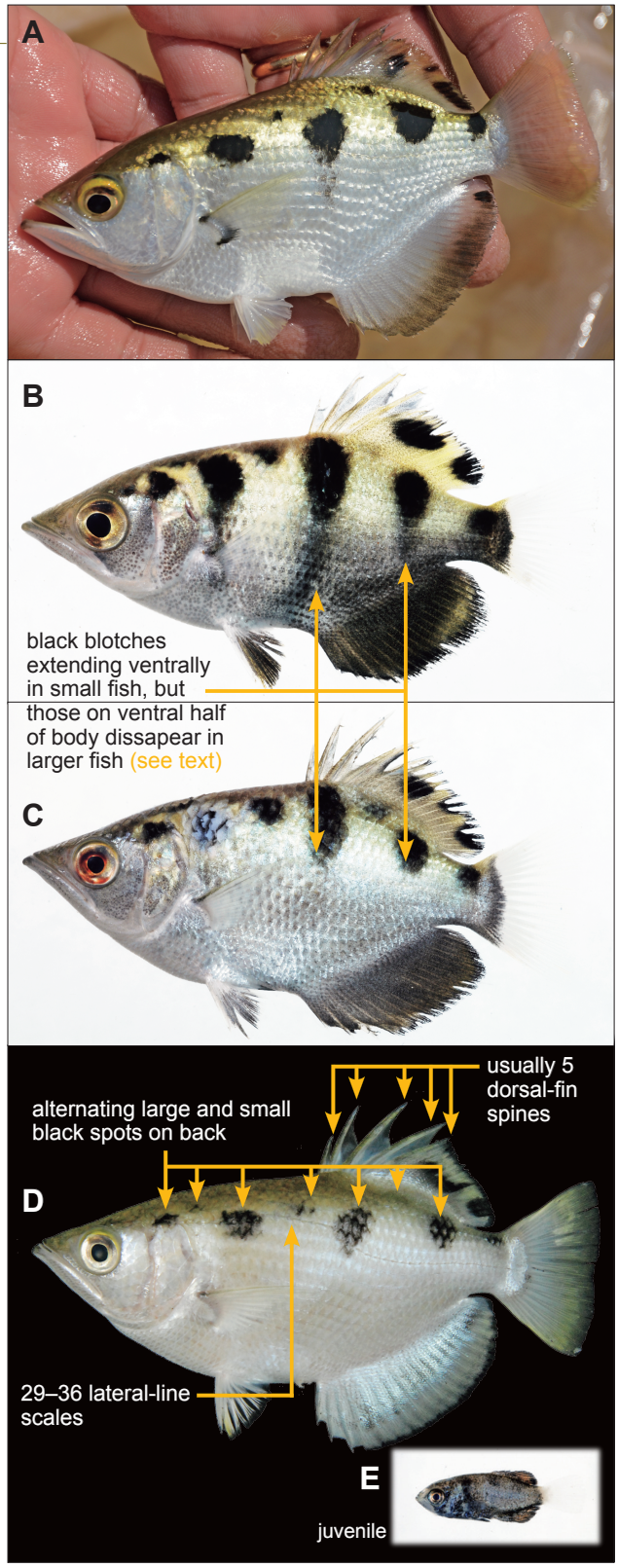
Notes: A medium-sized species of archerfishes, found in large rivers. *Toxotes chatareus* is the most common freshwater species of the family in the Mekong.

The family Toxotidae comprises a single genus *Toxotes* with 10 species from mangrove areas at/around brackish estuaries and freshwater rivers of the Indo-West Pacific (Allen, 1978, 2004; Kottelat & Tan, 2018). Of these, 3 species of *Toxotes* are known from the Mekong (Kottelat & Tan, 2018): *T. chatareus*, *T. jaculatrix*, and *T. mekongensis*; the fish previously reported as *T. microlepis* from the Mekong (*e.g.*, Rainboth, 1996b; Kottelat, 2001a; Vidthayanon, 2008), were re-identified as *T. mekongensis* by Kottelat & Tan (2018); true *T. microlepis*, possibly not in freshwater habitats, is hitherto known only by a single specimen from an unknown locality of Thailand (see Kottelat & Tan, 2018). During our field surveys in 2007–2013, only a single species *T. chatareus* was collected. *Toxotes jaculatrix*, which was not confirmed by our surveys in the Mekong, is common around the estuarine areas of non-Mekong basins of western Cambodia; a photograph of freshly-collected specimen, collected from a market in Koh Kong of Cambodia, is shown below.

Toxotes chatareus is readily differentiated from *T. jaculatrix* by having usually 5 dorsal-fin spines (*vs.* 4 in *T. jaculatrix*) and a series of 6 or 7 alternating large and small black spots on the upper side of the body (*vs.* 4 or 5 large black spots on the upper side of the body; see photograph below). The other one, *T. mekongensis*, can be distinguished from *T. chatareus* and *T. jaculatrix* by having 36–40 lateral-line scales [*vs.* 29–36 (to 37 in Allen, 1978: 362–363, table 2) and 26–30 in *T. chatareus* and *T. jaculatrix*, respectively] (Kottelat & Tan, 2018). Small fish of *T. chatareus* have black blotches extending ventrally to ventral half of body (see photo B), but the ventral extended portions dissapear with growth (*vs.* persistent in *T. mekongensis* even in large fish), as noted by Kottelat & Tan (2018: 15); at least in larger fish, this characteristic may help the identification of these similar species with slightly overlapping count of the lateral-line scales. Kottelat & Tan (2018: 12) re-identified Taki's (1968: 46, 1974a: 192) *T. microlepis* as *T. mekongensis*, but, judging from the figure and description (*e.g.*, "Ll. 34–37"), Taki's specimens appear to include *T. chatareus*.



◀ Non-Mekong specimen of *Toxotes jaculatrix* (Koh Kong, Cambodia, IFREDI-P 6079, photo: PT)



A) One of UNMF specimen (photo: KS); B) CTU-P 3197 (photo: LXT); C) CTU-P 3257 (photo: LXT); D) IFREDI-P 1021 (photo: PT); E) CTU-P 1752 (photo: LXT)

Gerres

Fishes of the family Gerreidae, usually found in shallow coastal marine waters and brackish estuaries, have a silvery, compressed body. Like the leiognathid fishes (pp. 388–389), the gerreids have strongly protractile mouth, but the scales are much larger (*vs.* scales are minute and barely visible without magnification in the leiognathids).

Of 2 gerreid genera found in the Indo-West Pacific (*viz.*, *Gerres* and *Pentaprion*), one genus, *Gerres*, is known to enter brackish estuaries and adjacent freshwater areas. At least 3 species of *Gerres* were collected during our field surveys in the Mekong in 2007–2013, although several additional species are expected (see "Notes" of *G. filamentosus*, below).

Gerres filamentosus Cuvier, 1829

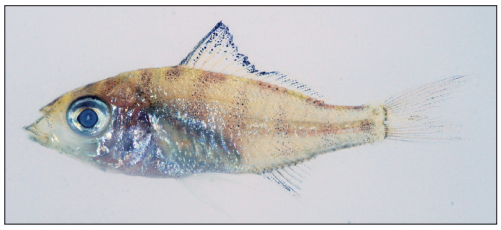
Family: Gerreidae (FC: 373)

Size: 30 cm TL (Woodland, 2001a: 2952).

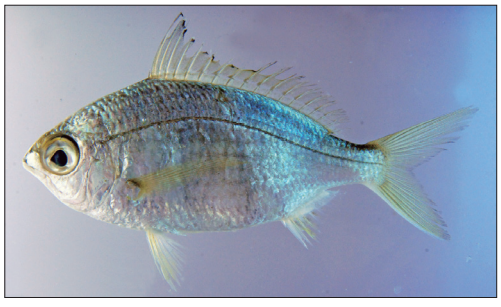
Distribution: Mekong Basin in Vietnam; Indo-Pacific.

Notes: A large-sized species of *Gerres*, found in shallow coastal marine waters, brackish estuaries, and adjacent freshwater areas; it is commonly seen at markets around estuarine areas of the Mekong Delta.

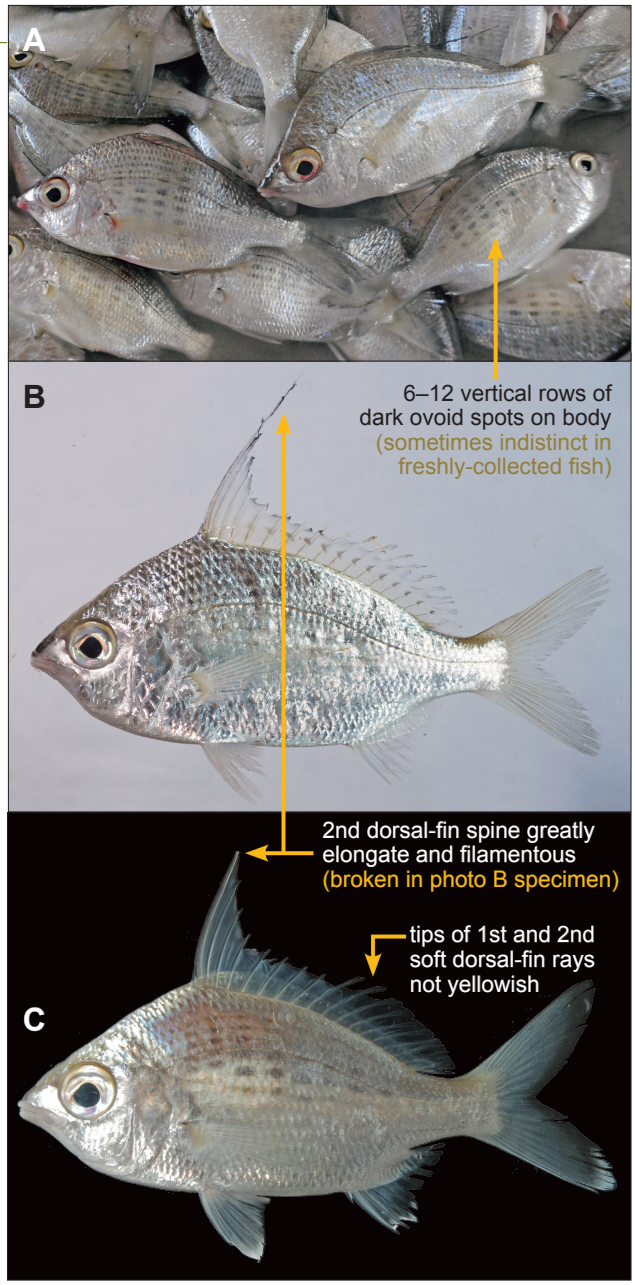
Four species of *Gerres* are known to have a greatly elongated and filamentous second dorsal-fin spine (Iwatsuki *et al*., 1996, 2002; Iwatsuki & Kimura, 1998): *G. filamentosus*, *G. infasciatus*, *G. macracanthus*, and *G. microphthalmus*. Of these, 3 species (*G. filamentosus*, *G. infasciatus*, and *G. macracanthus*) were listed as fishes of the "Greater Mekong Ecosystem" by Rainboth *et al.* (2012), although any voucher specimens from the Mekong were not addressed by them. These 3 species are known to enter (or to be found around) brackish estuaries, and are thus expected from the Mekong Basin. However, we could only confirm a single species *G. filamentosus* during our field surveys in the Mekong in 2007–2013. According to Iwatsuki *et al*. (1996) and Iwatsuki & Kimura (1998), *G. filamentosus* can be distnguished from *G. infasciatus* and *G. macracanthus* by having 6–12 vertical rows of dark ovoid spots on the body (*vs.* no dark markings and usually 6–10 indisitnct dark vertical bands on the body in *G. infasciatus* and *G. macracanthus*, respectively) and a slightly higher count of lateral-line scales (43–46 *vs.* 39–40 and 41–44); tips of the first and second soft dorsal-fin rays are yellowish in freshly collected specimen of *G. infasciatus*, whereas the tips are not yellowish (dusky) in *G. filamentosus* and *G. macracanthus* (Iwatsuki & Kimura, 1998; Fukuhara *et al.*, 2006).



▲ Non-Mekong specimen (juvenile) of *Gerres oyena* (Koh Kong, Cambodia, IFREDI-P 6514, photo: PT)



▲ Non-Mekong specimen of *Gerres shima* (Koh Kong, Cambodia, IFREDI-P 6514, photo: PT)



A) Marketed fish, not preserved (Bến Tre, Vietnam, photo: KS); B) CTU-P 3306 (photo: LXT); C) CTU-P 1389 (photo: LXT)

Other than 3 species shown in this book, several species of *Gerres* are expected to be found in the Vietnamese Mekong. Vidthayanon (2008: 286) reported 4 species of *Gerres* from the Mekong Delta: *G. erythrourus*, *G. longirostris* [as *G. acinaces*, a junior synonym (see Iwatsuki *et al*., 2001c)], *G. infasciatus*, and *G. filamentosus*. The other examples of additional candidates to occur in this region are *G. oyena* and *G. shima* (shown in left). During our field surveys in 2007–2013, we were not able to collect these 2 species from the Mekong, but collected from Koh Kong, western coast of Cambodia.

Gerres decacanthus (Bleeker, 1864)

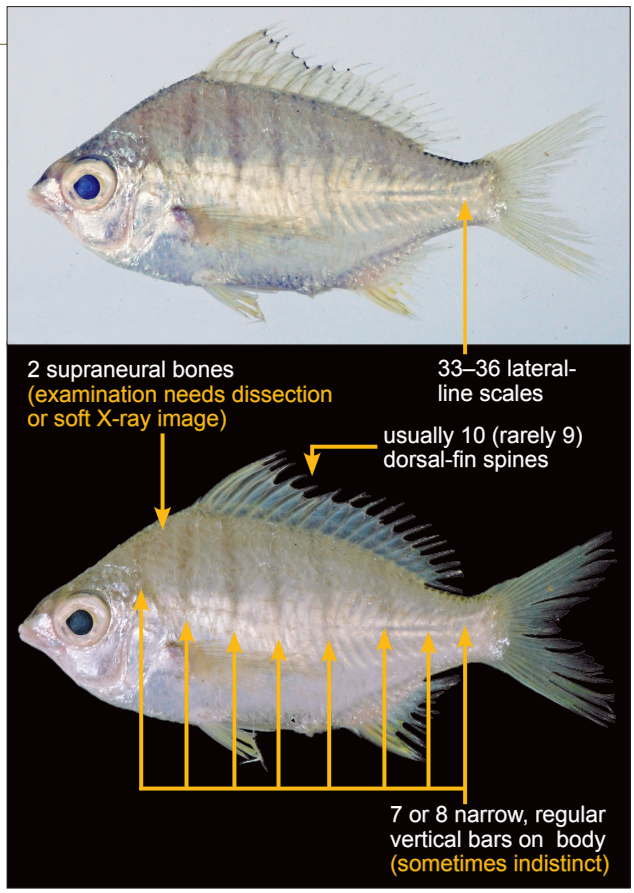
Family: Gerreidae (FC: 373)

Size: 9.1 cm SL (Iwatsuki *et al.*, 1999: 32).

Distribution: Mekong Basin in Vietnam; South China Sea (China and Vietnam).

Notes: A small-sized species of *Gerres*, found in brackish estuaries and adjacent shallow coastal marine waters. The specimen shown here was from a market at Bến Tre, Vietnam.

The photographed specimen was identified as *Gerres decacanthus* by Y. Iwatsuki (Miyazaki University, Japan). This species belongs to the "*Gerres setifer* complex" of Iwatsuki *et al*. (1999a) that has 2 supraneural bones (*vs.* 3 in the other complexes). The other species of this complex are: *G. chrysops* (known only from the northwestern Gulf of Thailand), *G. setifer* (Indian Ocean and Andaman Sea) and *G. silaceus* (southern Malay Peninsula) (Iwatsuki *et al*., 1999, 2001a). Of these, *G. decacanthus* can be distinguished from the others by having 7 or 8 narrow, regular vertical bars on body (but the bars may be indistinct as shown by Iwatsuki *et al*., 1999). *Gerres septemfasciatus*, described from South China Sea by Liu & Yan (2009), is very similar, and needs confirmation regarding its taxonomic status (Y. Iwatsuki, pers. comm.).



CTU-P 4924 (photo: LXT)

Gerres sp. (cf. *limbatus*)

Family: Gerreidae (FC: 373)

Size: (not measured).

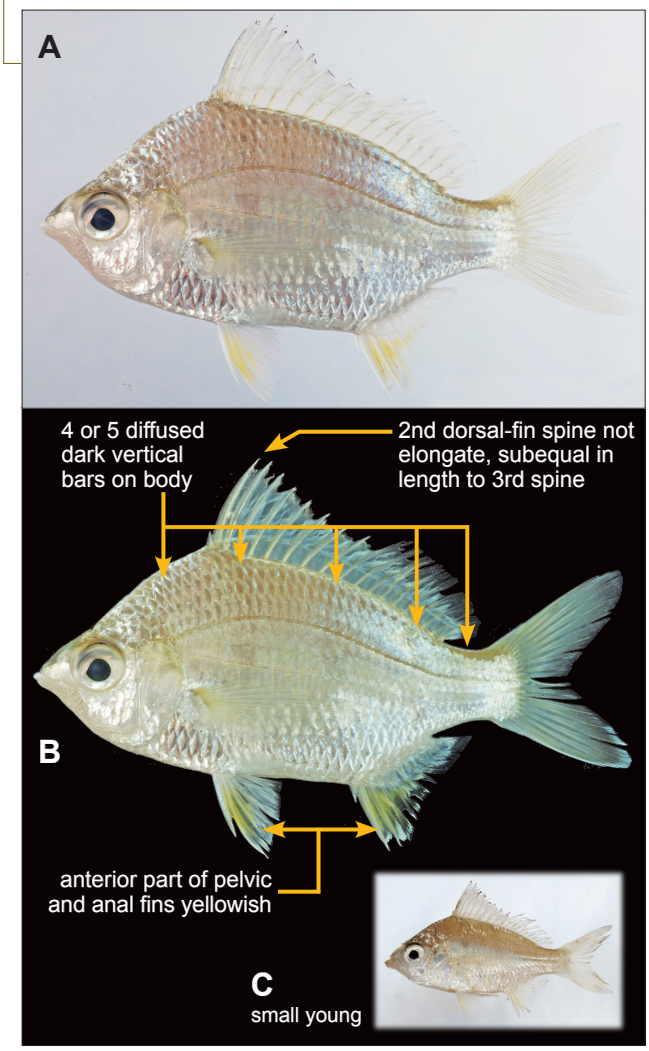
Distribution: Mekong Basin in Vietnam.

Notes: A medium-sized species of *Gerres*, commonly found in brackish estuaries and adjacent freshwater areas; it is being studied by Y. Iwatsuki (Miyazaki University, Japan).

This Mekong species was previously identified by us as *Gerres limbatus* (*e.g.*, Tran *et al.*, 2013), but Y. Iwatsuki is unsure about our identification. Actually, the Mekong species appears to have deeper body than true *G. limbatus*, although the coloration is similar to the latter (see also redescription of *G. limbatus* by Iwatsuki *et al.*, 2001b). Its deep body and yellowish pelvic and anal fins are somewhat similar to those of a common Indo-Pacific congener *G. erythrourus* (shown below), and may be confused. *Gerres erythrourus* can be distinguished from the Mekong species [*Gerres* sp. (cf. *limbatus*)] by having a second dorsal-fin spine distinctly longer than the third spine (*vs.* subequal in the latter), a second anal-fin spine subequal to anal-fin base in length (*vs.* much shorter than anal-fin base), 4–11 relatively close-set, dark vertical bars on the body (*vs.* 4 or 5 widely-spaced dark bars on the body), and several indistinct dark longitudinal lines along scale rows of the midlateral body (*vs.* absent) (Iwatsuki *et al*., 1998, 2001b; present study).



▲ Non-Mekong specimen of *Gerres erythrourus* (Koh Kong, Cambodia, IFREDI-P 6514, photo: PT)



A and B) CTU-P 3258 (photo: LXT); C) CTU-P 1140 (photo: LXT)

Ponyfishes

Members of the Indo-West Pacific fish family Leiognathidae, commonly known as "ponyfishes", has well compressed silvery body and protractile mouth; these characters are similar to those of the gerreid fishes (pp. 386–387), but the leiognathids has much smaller scales (hard to be examined without magnification) on body.

The leiognathids had long been assigned to 3 genera: *Deveximentum* (as its synonym *Secutor*), *Gazza*, and *Leiognathus*. Recent researchers of molecular phylogeny, however, revealed the non-monophyly of the genus *Leiognathus* previously recognized, and divided it into several distinct genera (see "Notes" of *Leiognathus equulus*, next page).

Gazza minuta (Bloch, 1795)

Family: Leiognathidae (FC: 366)

Size: 13.1 cm SL (Yamashita *et al.*, 1998: 276).

Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A medium-sized species of ponyfishes, found in coastal marine waters and brackish estuaries.

Fishes of *Gazza* are readily distinguished from the other leiognathids by having a forward protractile mouth and enlarged canine-like teeth anteriorly in jaws (Kimura *et al.*, 2000; Woodland *et al*., 2001). Four species are known in *Gazza* (Yamashita *et al*., 1998; Kimura *et al.*, 2000): *G. achlamys*, *G. dentex*, *G. minuta*, and *G. rhombea*. Of these, only a single species *G. minuta* was collected from the Mekong during our field surveys in 2007–2013, although the other 3 congeners, also known to enter brackish estuaries in the Indo-West Pacific, are expected from the Mekong Basin. *Gazza minuta* is unique within the genus in having scaled area of the dorsoanterior part of the body extending well beyond a vertical line though the dorsal edge of the gill opening (*vs.* not or barely reaching it in the congeners) (Yamashita *et al.*, 1998; Kimura *et al.*, 2000).

Deveximentum hanedai (Mochizuki & Hayashi, 1989)

Family: Leiognathidae (FC: 366)

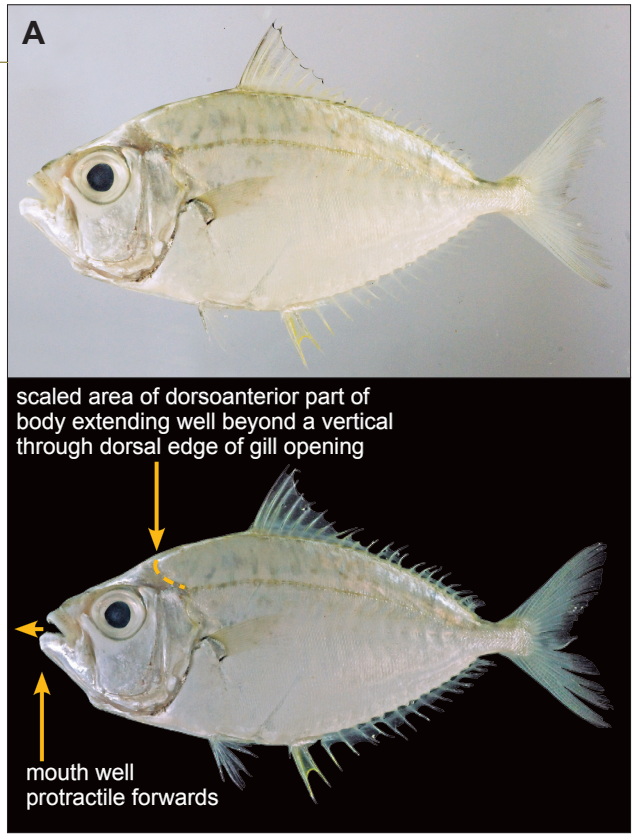
Size: 7.0 cm SL (Mochizuki & Hayashi, 1989: 94, as *Secutor hanedai*).

Distribution: Mekong Basin in Vietnam; Western Pacific and Andaman Sea.

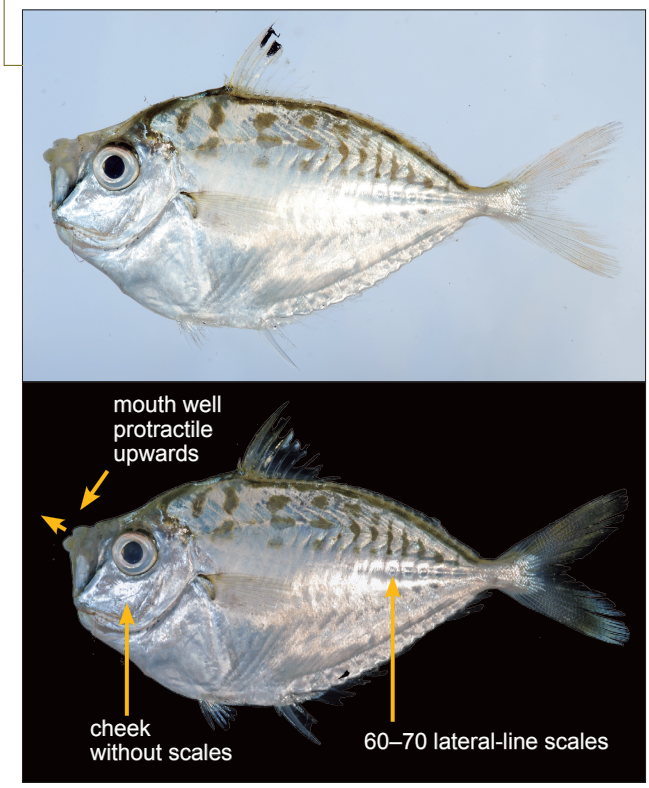
Notes: A relatively small-sized species of ponyfishes, found in coastal marine waters and brackish estuaries. The specimen shown here was collected from the estuarine area at Trà Vinh, Vietnam.

Fishes of *Deveximentum*, known as *Secutor* before Kottelat (2013b; see below), are readily distinguished from the other leiognathids by having an unpturned mouth (well protractile upwards). The genus comprises 5 species (*D. hanedai*, *D. indicum*, *D. insidiator*, *D. interruptum,* and *D. megalolepis*) from the Indo-West Pacific (Mochizuki & Hayashi, 1989, as *Secutor*). Rainboth *et al*. (2012) reported *D. interruptum* (as *Secutor ruconius*) from the Mekong Delta. During our field surveys in 2007–2013, only a single species *D. hanedai* was collected from the Vietnamese Mekong. *Deveximentum hanedai* is one of 3 species of the genus lacking scales on the cheek, and differs from the other 2 (*D. indicus* and *D. insidiator*) by having fewer lateral-line scales (60–70 *vs*. 87–111 and 84–107 in *D. indicus* and *D. insidiator*, respectively).

Kottelat (2013c: 337, 339) stated that *Secutor* is a replacement name for *Equula*, itself a junior synonym of *Leiognathus*; he thus assigned all species having been placed in *Secutor* to the only available generic name for these fishes, *Deveximentum*.



CTU-P 4926 (photo: HVM)



CTU-P 1162 (photo: LXT)

Nuchequula gerreoides (Bleeker, 1851)

Family: Leiognathidae (FC: 366)

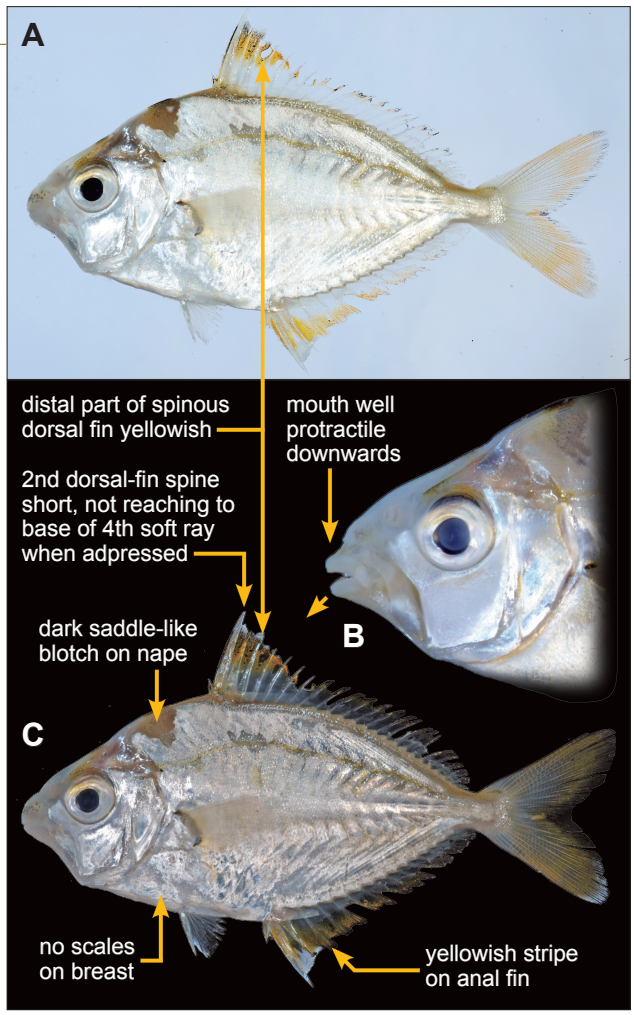
Size: 9.9 cm SL (Kimura *et al.*, 2008: 33).

Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A relatively small-sized species of ponyfishes, found in coastal marine waters and brackish estuaries; it appears to be the most common ponyfish in brackish estuaries of the Mekong, but, due to its small size, it has less commercial value than the next common leiognathid *Leiognathus equulus* (below). This species was previously known as *Leiognathus decorus* by many researchers (*e.g.*, Vidthayanon, 2008: 285); the name is a junior synonym of *N. gerreoides* (see Kimura *et al.*, 2008).

Fishes of *Nuchequula*, having a downward-protractile mouth, upper jaw with a band of small villiform teeth, and a characteristic dark blotch on the nape, have long been placed in the catch-all genus *Leiognathus* (see "Notes" of *Leiognathus equulus*, below); *Nuchequula* was recently resurrected as a valid genus by Chakrabarty & Sparks (2007) and Kimura *et al*. (2008). The genus comprises 6 species (*N. blochii*, *N. flavaxilla*, *N. gerreoides*, *N. glenysae*, *N. longicornis*, and *N. nuchalis*) from the Indo-West Pacific (Kimura *et al.*, 2008), and, of these, *N. gerreoides* is the only species known from the Mekong.

According to Kimura *et al.* (2008, fig. 8), additional 2 congeners, *Nuchequula blochii* (*Leiognathus pan*, a junior synonym) and *N. longicornis*, are known from the Gulf of Thailand, and thus may be expected to occur in the Vietnamese Mekong. *Nuchequula blochii* has a scaled breast (*vs.* naked in *N. gerreoides*) and a dark blotch at the distal part of the spinous dorsal fin (*vs.* absent); *N. longicornis* has a longer second dorsal-fin spine, extending beyond the base of the fifth soft ray when adpressed (*vs.* not reaching the base of the fourth soft ray) (Kimura *et al.*, 2008).



A and C) CTU-P 1119 (photo: LXT); B) CTU-P 1725 (photo: LXT)

Leiognathus equulus (Forsskål, 1775)

Family: Leiognathidae (FC: 366)

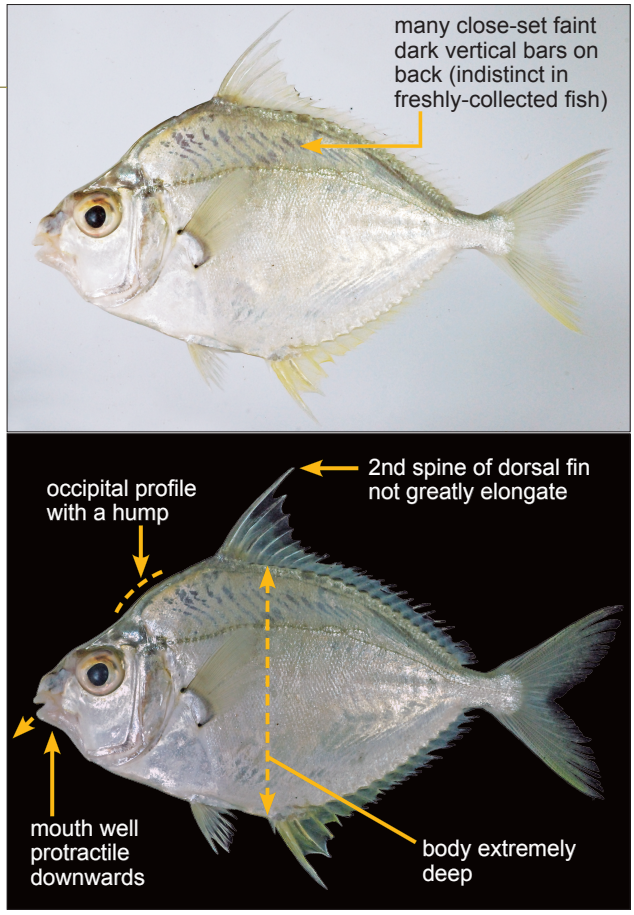
Size: 24 cm TL (Woodland *et al*., 2001: 2808).

Distribution: Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A large-sized species of ponyfishes, found in coastal marine waters and brackish estuaries; it is commonly seen at the markets around estuarine areas of the Mekong.

The leiognathids with a downward-protractile mouth have long been placed in the catch-all genus *Leiognathus*, until recent molecular researchers revealed the non-monophyly of the genus. Although the *Leiognathus* previously recognized are currently divided into several (up to 8) distinct genera (*e.g.*, Sparks & Dunlap, 2004; Sparks *et al.*, 2005; Chakraborty & Sparks, 2008), generic classification of the leiognathids is still in a state of flux (see Kimura *et al.*, 2008; Kottelat, 2013c). Examples of these genera include: *Equulites*, *Eubleekeria*, *Karalla*, *Leiognathus*, *Nuchequula* (shown above), and *Photopectoralis*.

Members of *Leiognathus* are large-sized leiognathids (attaining >150 mm SL), having a extremely deep body (Chakrabarty & Sparks, 2008; Kimura *et al.*, 2008). *Leiognathus equulus* is very similar to, and easily confused with, *L. robustus*, described by Sparks & Dunlap (2004) from Singapore, but has a prominent hump of the occipital profile. The remaining 2 congeners, *L. fasciatus* (known from Indo-West Pacific) and *L. striatus* (India), have a longer second dorsal-fin spine (see James & Badrudeen, 1991).



CTU-P 4910 (photo: HVM)

Jacks

Fishes of the family Carangidae, commonly known as jacks, scads, trevallies, queenfishes, and pompanos, usually have a compressed silvery body with minute scales, the anterior 2 of 3 (rarely 1 of 2) anal-fin spines separated from main part of the fin, and deeply-forked caudal fin, although the general appearance is variable depending on the genera/species. The carangids are marine fishes, and some, particularly in juveniles and young, are known to enter brackish estuaries.

Due to their high commercial value, the carangid fishes are commonly seen at the markets everywhere in the Mekong Delta of Vietnam. Almost all of these are fished from the marine areas, but a few are possibly taken from the brackish estuaries. Vidthayanon (2008) and Rainboth *et al.* (2012) recorded 3 and 11 species of the carangids from the Mekong Delta, respectively, but it is not clear if these species were collected from inland or coastal marine areas.

Atule mate (Cuvier, 1833)

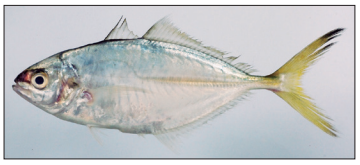
Family: Carangidae (FC: 364)

Size: 30 cm TL (Smith-Vaniz, 1999: 2692).

Distribution: ?Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A medium-sized species of carangids, found in coastal marine waters; it is also known to enter brackish estuaries (*e.g.*, Alfred, 1966). *Atule mate* is commonly seen at markets in the Mekong Delta of Vietnam, although it is not clear whether these species were collected from inland or coastal marine areas in this region.

Atule, comprising a single species *A. mate*, is somewhat similar to *Alepes* in general appearance, but has a developed adipose eyelid, covering both the anterior and posterior parts of eye (*vs.* covering the posterior half of eye in *Alepes*). For comparison, a species of *Alepes* is shown below; this fish, purchased from a market at the Mekong Delta in Bến Tre, Vietnam, was probably taken from the marine areas. Note that the inland-water records are not known in the species of *Alepes*.



Alepes vari (Bến Tre, Vietnam, CTU-P 4172)

Selaroides leptolepis (Cuvier, 1833)

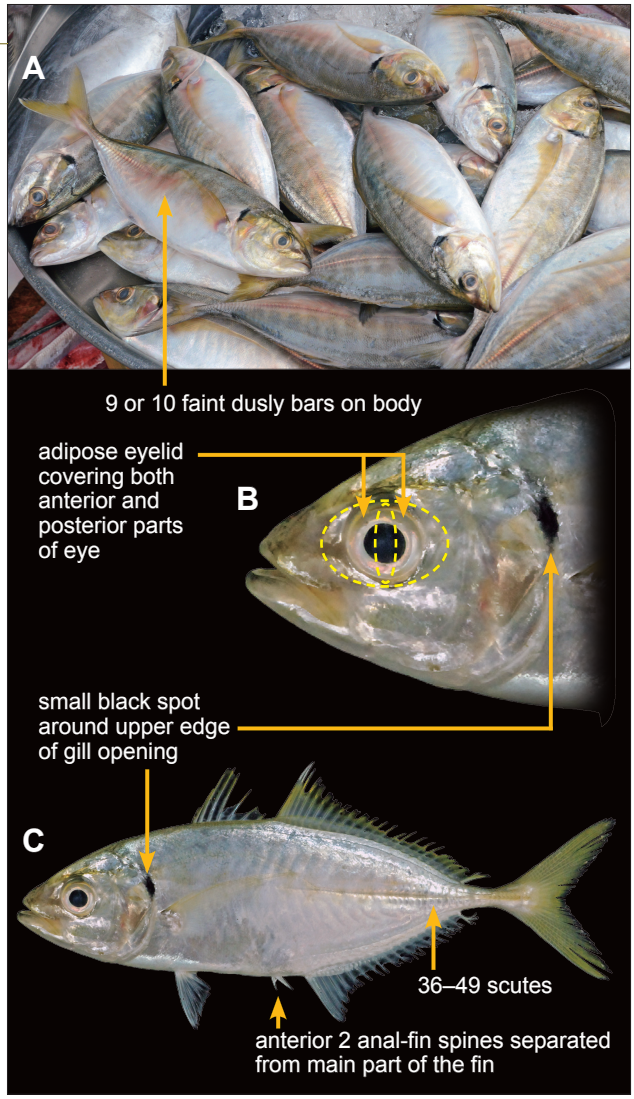
Family: Carangidae (FC: 364)

Size: 18.5 cm FL (Smith-Vaniz, 1999: 2737).

Distribution: ?Mekong Basin in Vietnam; Indo-West Pacific.

Notes: A relatively small-sized species of carangids, found in coastal marine waters. Rainboth (1996b: 184) noted, "It was seen by the author in the freshwater tidal zone in the Mekong delta, and may occasionally be found in Cambodia." This means that the species has not yet been actually confirmed from the Cambodian Mekong. Rainboth's record, however, needs confirmation, because his subsequent paper (Rainboth *et al.*, 2012) apparently neglected Rainboth' (1996b) record of this species. Kottelat (2013c: 336) listed *S. leptoleis* as an inland fish in Southeast Asia, based on Rainboth's (1996b) record.

Selaroides leptolepis, having a broad yellow stripe on body and conspicuous black spot at posterior end of operculum, is sometimes seen at markets in coatsal areas of the Mekong Delta, although it is not clear if the fish were caught from inland or coastal marine areas. The photograph of the non-Mekong fish of *S. leptolepis*, taken at a market in Phú Quốc Island of Vietnam, is shown here.



A) Non-Mekong, marketed fish, not preserved (Hồ Chí Minh, Vietnam, photo: KS); B and C) CTU-P 4921 (photo: HVM)



Marketed, non-Mekong fish, not collected (Phú Quốc Island, Vietnam, photo: KS)