

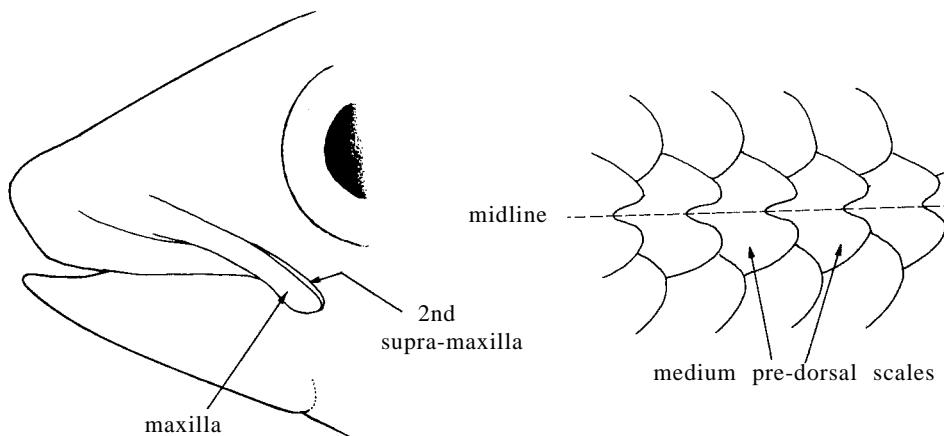
**Anodontostoma** Bleeker, 1849

## CLUP Anod

? Gonostoma van Hasselt, 1823, Algemeene Konst- en Letter-bode, 1(21):329 (type: none given; not Gonostoma Rafinesque, 1810). Anodontostoma Bleeker, 1849, Verh.batav.Genoot.Kunst.Wet., 22:15 (type: Anodontostoma hasseltii Bleeker = Clupanodon chacunda Hamilton-Bum.

**Diagnostic Features :**

Small or moderate-sized marine gizzard shads (but entering rivers) (to about 18 cm standard length); body very deep, its depth 40 to 75% of standard length in fishes over 9 cm, belly fully scuted. Mouth subterminal or a little inferior, upper jaw slender at tip and not strongly turned down, a single slender or even splint-like second supra-maxilla; lower jaw short, its edges strongly flared outward. Gillrakers fine and numerous (50 to



170 on lower arch). Last dorsal finray not filamentous; anal fin much shorter than head, with 17 to 25 (usually 19 to 21) finrays. Pre-dorsal scales forming a single median series, post-dorsal scales with hind margin elongated. Scales moderately large, 38 to 45 in lateral series. A dark spot behind gill opening. Resembles the freshwater Gonialosa in lacking a dorsal filament, but in that genus the pre-dorsal scales are paired, there are 22 to 28 (usually 24 to 26) anal finrays and the upper jaw turns down strongly at its tip. Other Indo-Pacific gizzard shads have a dorsal filament; the mouth is terminal in the Alosinae (Hilsa, Tenuialosa, Gudusia) and other clupeids.

**Biology, Habitat and Distribution :** Marine, but entering freshwater, from the "Gulf" to northern Australia, the Caroline Islands and New Caledonia.

**Interest to Fisheries :** No specific fisheries, but of limited local interest.

**Species :** To the 2 species (chacunda and chanpole) mostly accepted by earlier authors, Wongratana (1983) added a third, but identified Hamilton-Buchanan's chanpole as a Nematalosa and resurrected Bleeker's selangkat; chanpole is here recognized as a synonym of chacunda:

- A. chacunda (Hamilton-Buchanan, 1822), Indo-West Pacific
- A. selangkat (Bleeker, 1852), eastern Indian Ocean and Indonesia
- A. thailandiae Wongratana, 1983, Thailand, Indonesia.

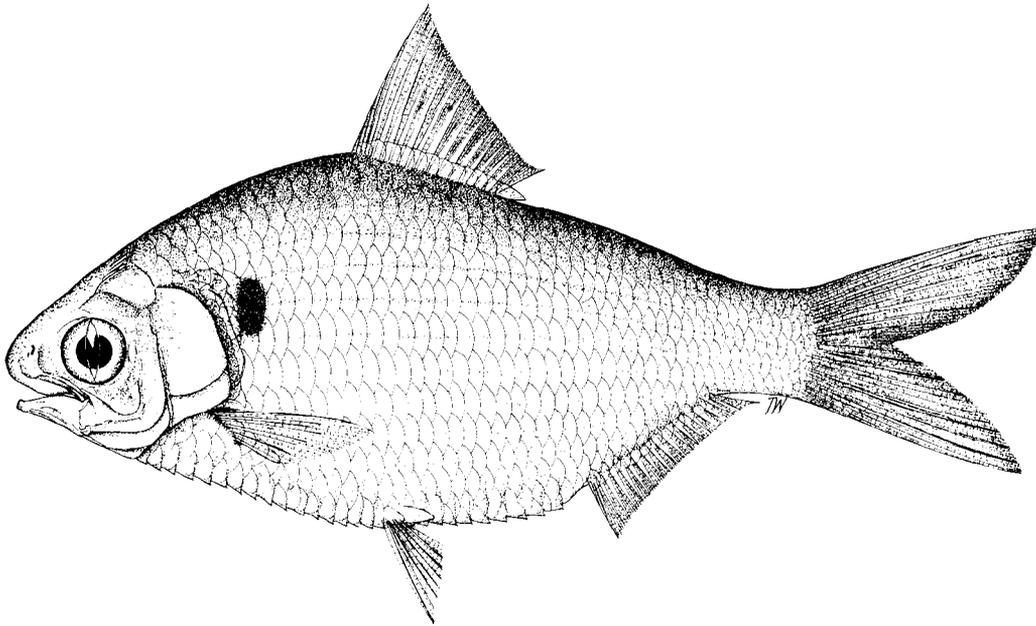
**Anodontostoma chacunda** (Hamilton-Buchanan, 1822)

## CLUP Anod 1

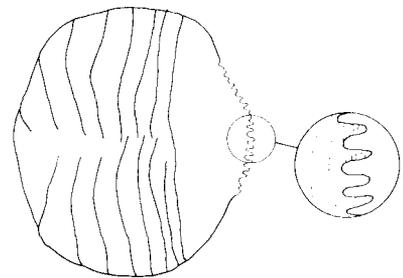
Clupanodon chacunda Hamilton-Buchanan, 1822, Fishes of Ganges:246 (Ganges estuaries).

**Synonyms :** Clupanodon chanpole Hamilton-Buchanan, 1822:249, pl. 18, fig. 74 (Ganges); ? Gonostoma sp. van Hasselt, 1823:329 ("die zeer veel overeenkomst heeft met Meg. Naso Lacep.", but without dorsal filament; see Alfred, 1961 for notes on van Hasselt's fishes); Anodontostoma hasseltii Bleeker, 1849:15 (Madura Strait, Java Sea); Gonostoma javarficum Hyrtl, 1855:49 (Java); Anodontostoma chacunda - Fowler, 1941:549 (the Philippines, "Borneo", Java, India; key, very large synonym. descr.); Whitehead, 1962:101 (key); Idem, 1965:263 (the "Gulf"); Whitehead, Boeseman & Wheeler, 1966:88, 89, pl. 11, fig. 1 (Bleeker's fig.) (types of hasseltii, selangkat); Nelson & Rothman, 1973:141, figs 1C, 4A, B (photos), map 1 (synonym. descr., very large list of refs); Whitehead, 1973b:207, fig. 33 (key, refs); Wongratana, 1980:188, pls 146, 147 (revision).

**FAO Names :** En - Chacunda gizzard shad.



**Diagnostic Features :** A marine gizzard shad; body very deep, its depth increasing with size of fish, 40 to 70% of standard length in fishes over 10 cm. Mouth inferior; second supra-maxilla a mere splint. Lower gillrakers 54 to 96; longest gillrakers on lower part of arch less than corresponding gill filaments (and much less in larger fishes). Last dorsal finray not filamentous. Hind edges of scales toothed, the teeth thinner than gaps between them; a median series of pre-dorsal scales. A large black spot behind gill opening. Resembles *A. selangkat*, which has more lower gillrakers (100 to 166) and teeth on scales wider than gaps between, and *A. thailandiae*, which has the longest gillrakers on lower part of arch at least as long as corresponding gill filaments, also second supra-maxilla paddle-shaped. Species of *Gonialosa* and *Nematalosa* have paired pre-dorsal scales, also a dorsal filament in the latter. Other clupeids have a terminal mouth. See CLUP Anod 1, Fishing Area 51, also Fishing Areas 57, 71.



scale

**Geographical Distribution :** Indian Ocean (the "Gulf" to coasts of India and Andaman Sea), western Pacific (Gulf of Thailand to northern Australia, the Caroline Islands and New Caledonia; also Indonesia, the Philippines and Viet Nam).

**Habitat and Biology :** Marine, pelagic and in-shore, also in estuaries. Feeds on diatoms, radiolarians, molluscs, copepods and crustaceans (in that order of importance, at least in the Godavari estuary). Breeds from November to February, mainly in the later part (Godavari estuary).

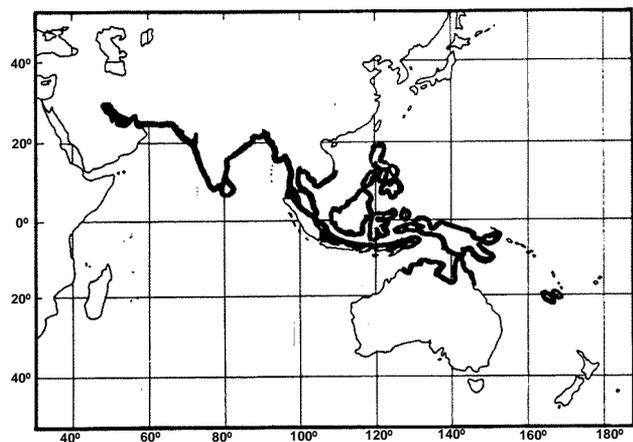
**Size :** To 17.5 cm standard length, common around 10 to 14 cm.

**Interest to Fisheries :** Local contributions, e.g. November to June in Godavari estuary, but no special fishery.

**Local Names :** INDIA: Chacunda; INDONESIA: Selangkat, Trubala (Malay), Lakar, Penden, Slamet (Java), Bandring, Djangan (Madura), Belo (Sunda), Pias (Bagan Api-Api).

**Literature :** Chacko (1954 - breeding); Babu Rao (1965 - general biology); further references in Whitehead (1973b) and over a hundred in Nelson & Rothman (1973), although at least some of these must refer to the sympatric species *A. selangkat* and *A. thailandiae*.

**Remarks :** For identity of Hamilton-Buchanan's *chanpole*, see under *Nematalosa galathea*.



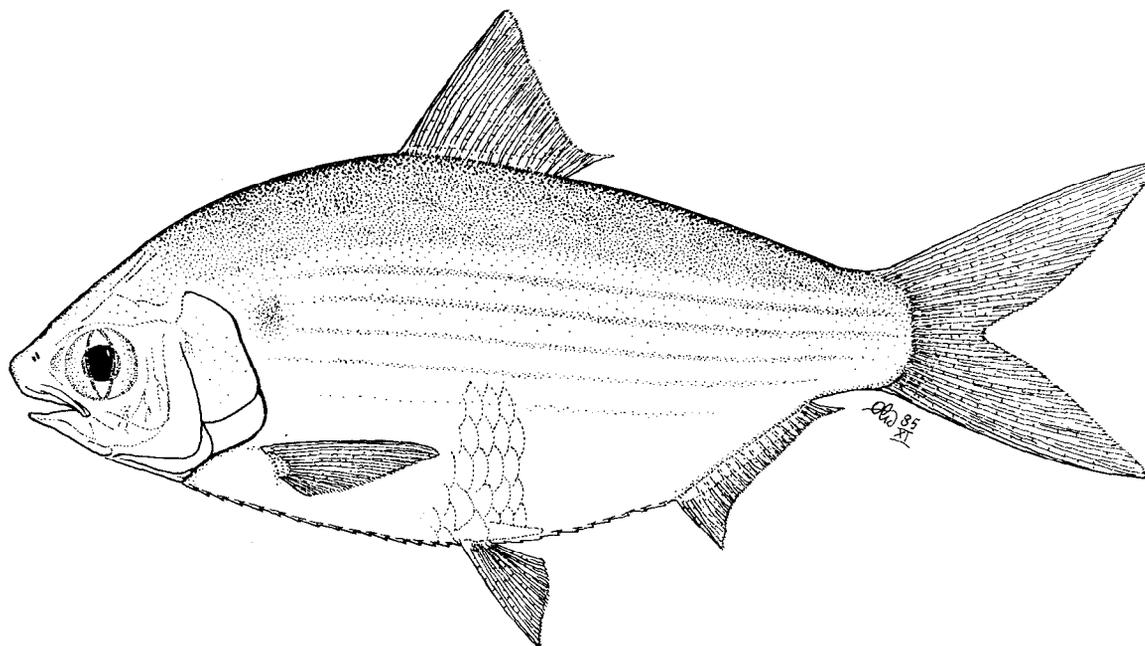
**Anodontostoma selangkat** (Bleeker, 1852)

CLUP Anod 2

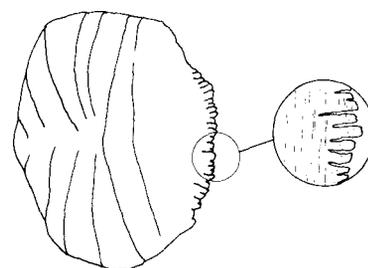
Chatoessus selangkat Bleeker, 1852, Natuurk.Tijdschr.Ned.-Indië, 3:458 (Muntok, Batavia).

**Synonyms** : Chatoessus breviceps Peters, 1877:838 (New Hanover); Anadontostoma chacunda:Whitehead, Boeseman & Wheeler, 1966:89, pl. 11, fig. 1 (Bleeker's figure) (type of selangkat); numerous authors who placed selangkat in the synonymy of chacunda; Anodontostoma selangkat - Wongratana, 1980:191, pls 148, 149 (revision).

**FAO Names** : En - Indonesian gizzard shad.



**Diagnostic Features** : A marine gizzard shad; body very deep, its depth increasing with size of fish, 40 to 75% of standard length in fishes over 9 cm. Mouth inferior; second supra-maxilla a mere splint. Lower gillrakers 100 to 166; longest gillrakers on lower part of arch less than corresponding gill filaments (and much less in larger fishes). Last dorsal finray not filamentous. Hind edges of scales toothed, the teeth wider than gaps between them; a median series of pre-dorsal scales. A large dark mark behind gill opening, followed by longitudinal streaks along flanks. Resembles A. chacunda, which has fewer lower gillrakers (54 to 96) and teeth on scales thinner than gaps between them, and A. thailandiae, which has the longest gillrakers on lower part of arch at least as long as corresponding gill filaments, also second supra-maxilla paddle-shaped. Species of Gonialosa and Nematalosa have paired pre-dorsal scales, also a dorsal filament in the latter. Other clupeids have a terminal mouth.



scale

**Geographical Distribution** : Indian Ocean (Andaman Islands - a single Day specimen), Java Sea, the Philippines and eastward to Bismark Archipelago (type locality of breviceps).

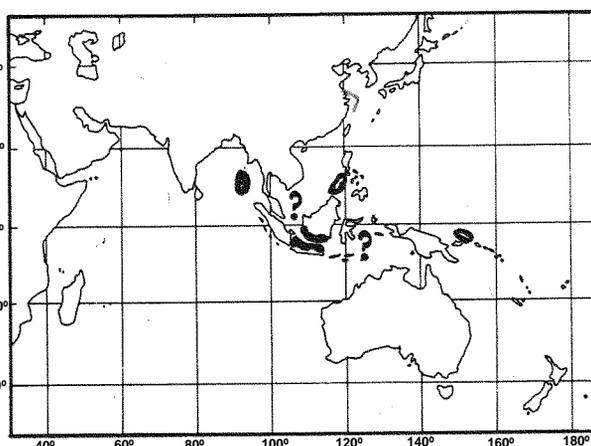
**Habitat and Biology** : Marine, pelagic and inshore (probably a similar biology to A. chacunda).

**Size** : To 18 cm standard length.

**Interest to Fisheries** : No data.

**Local Names** : Not distinguished from A. chacunda.

**Literature** : Confused with A. chacunda by authors prior to Wongratana (1980).



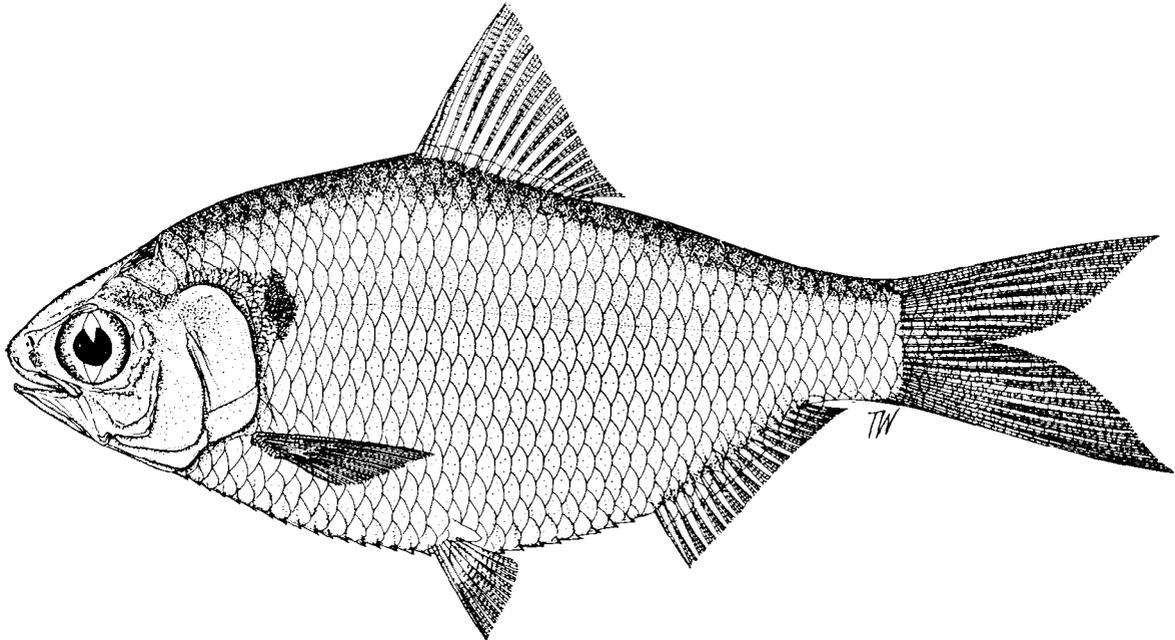
**Anodontostoma thailandiae** Wongratana, 1983

CLUP Anod 3

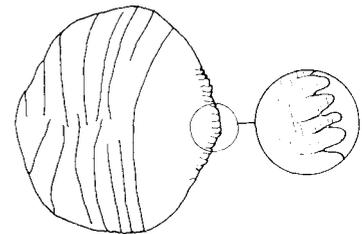
*Anodontostoma thailandiae* Wongratana, 1983, *Jap.J.Ichthyol.*, 29 (4):394, fig. 11 (Songkhla, Gulf of Thailand, also Calcutta, Bangladesh, Phuket, northern Sumatra, Borneo, Sarawak).

**Synonyms:** *Anodontostoma chacunda*: numerous authors.

**FAO Names:** En - Thai gizzard shad.



**Diagnostic Features:** A marine gizzard shad; body very deep, its depth increasing with size of fish, about 40 to 68% of standard length in fishes over 8 cm. Mouth inferior; second supra-maxilla paddle-shaped. Lower gillrakers 46 to 140; longest gillrakers on lower part of arch equal to or longer than corresponding gill filaments. Last dorsal finray not filamentous. Hind edges of scales toothed, the teeth wider than gaps between them; a median series of pre-dorsal scales. A large dark mark behind gill opening. Resembles *A. chacunda* and *A. selangkat*, which have lower gillrakers shorter than corresponding gill filaments and the second supra-maxilla a mere splint. Species of *Gonialosa* and *Nematalosa* have paired pre-dorsal scales, also a dorsal filament in the latter. Other clupeids have a terminal mouth.



scale

**Geographical Distribution:** Indian Ocean (northern part of Bay of Bengal, Andaman Sea at Phuket in Thailand), Gulf of Thailand, South China Sea, ? Java Sea.

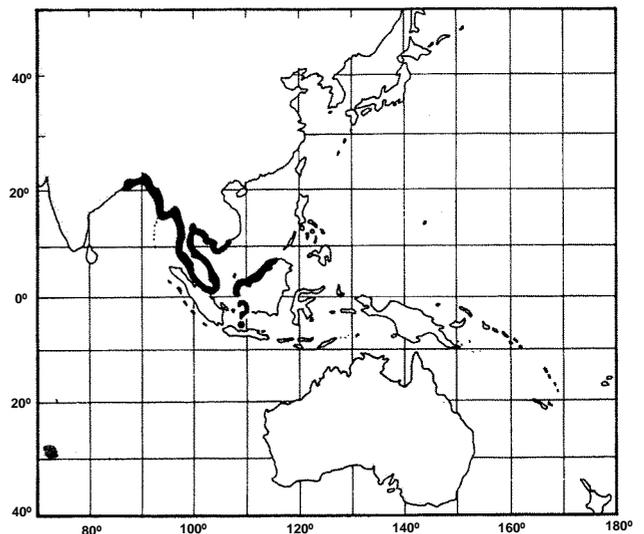
**Habitat and Biology:** Marine, pelagic and in-shore, probably entering estuaries (probably a similar biology to *A. chacunda*).

**Size:** To 18 cm standard length, usually 10 to 14 cm.

**Interest to Fisheries:** No data.

**Local Names:** Not distinguished from *A. chacunda*.

**Literature:** Confused with *A. chacunda* by authors prior to Wongratana (1983).



**Gonialosa** Regan, 1917

CLUP Gon

Gonialosa Regan, 1917, Ann.Mag.nat.Hist., (8)19:315 (type: Chatoessus modestus Day, designated by Jordan, 1920:560). Indialosa Herre & Myers, 1941, Lingnan Sci.J., (10):238 (type: Clupanodon manmina Hamilton-Buchanan).

**Diagnostic Features :** Small freshwater gizzard shads (to about 12 cm standard length); belly fully scuted. Mouth usually inferior (sub-terminal in one), upper jaw actually or apparently turned down at tip, short, rarely reaching front margin of eye, a single supra-maxilla; lower jaw short, its edges strongly flared outward. Gillrakers fine and numerous (90 to 180 on lower arch). Last dorsal finray not filamentous; anal fin equal to or a little shorter than head, with 22 to 28 (usually 24 to 26) finrays. Pre-dorsal scales paired and overlapping in midline. Scales moderate or small, 43 to 71 in lateral series. A dark spot behind gill opening. Resembles Anodontostoma in lacking a dorsal filament, but in that genus the pre-dorsal scales form a single median row, there are only 17 to 25 (usually 19 to 21) anal finrays and the upper jaw does not turn down at its tip. Other Indo-Pacific gizzard shads have a dorsal filament; the mouth is terminal in the Alosinae (Hilsa, Tenualosa, Gudusia) and other clupeids.

**Biology, Habitat and Distribution :** Freshwater in rivers of India, Bangladesh and Burma.

**Interest to Fisheries :** No specific fisheries, but of limited local interest.

**Species :** To the 2 species accepted since the revision by Regan (1917), Wongratana (1983) added a third:

G. manmina (Hamilton-Buchanan, 1822), Ganges

G. modesta (Day, 1869), Burma

G. whiteheadi Wongratana, 1983, Burma.

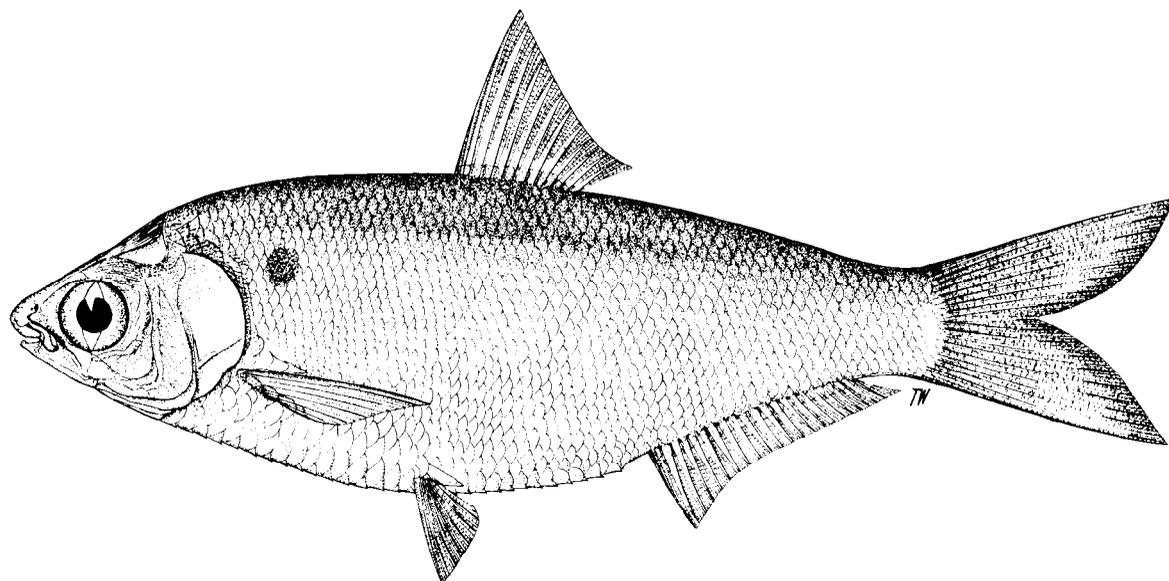
**Gonialosa manmina** (Hamilton-Buchanan,1822)

CLUP Gon 1

Clupanodon manmina Hamilton-Buchanan, 1822, Fishes of Ganges:247 (Ganges).

**Synonyms :** Clupanodon cortius Hamilton-Buchanan, 1822:249 (near Goyalpara, Bramaputra River); Gonialosa manmina - Regan, 1917:315 (India, Assam); Fowler,1941:548 (misspelt manminna, compiled); Whitehead, 1962:101 (key); Idem, 1973b:206, fig. 32 (key, refs); Nelson & Rothman, 1973:147, fig. 4C (photo) (synon., descr., refs); Wongratana, 1980:186, pls 142, 143 (revision).

**FAO Names :** En - Ganges river gizzard shad.



**Diagnostic Features :** A riverine gizzard shad; body fairly deep, its depth 33 to 38% of standard length, somewhat compressed, belly with 16 to 20 (usually 17 or 18) + 11 to 14 (usually 11 to 13), total 27 to 33 (usually 29 to 31) scutes. Mouth inferior, upper jaw slender at tip and distinctly turned down, second supra-maxilla very small. Scales small, 51 to 71 in lateral series. Resembles *G. modesta* of Burmese rivers, which is much deeper (depth 41 to 45% of standard length) and has larger scales (44 to 50 in lateral series); *G. whiteheadi* of Burmese rivers is also deeper-bodied, and has a subterminal mouth. *Anodontostoma* species usually have only 19 to 21 anal finrays (usually 23 to 26 in *G. manmina*) and are deeper-bodied. Other clupeids in the Ganges system either have terminal mouths (*Tenuialosa*, *Gudusia*, etc.) or a dorsal filament (*Nematalosa*).

**Geographical Distribution :** Rivers and associated waterbodies of Sri Lanka (fide Day, 1878:633 - see Remarks), India (Ganges and other rivers of Orissa, Uttar Pradesh, Bengal, Assam), Bangladesh; also Andaman Islands (fide Herre, 1940 - perhaps this was *Anodontostoma selangkat*).

**Habitat and Biology :** Riverine and in pools. More data needed.

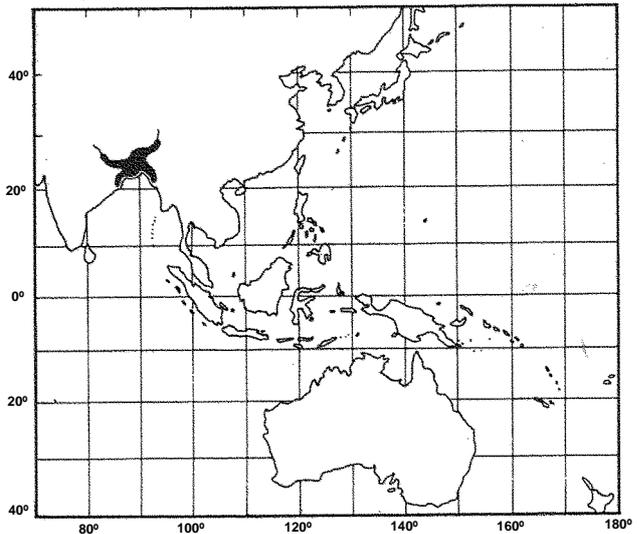
**Size :** To 11.5 cm standard length.

**Interest to Fisheries :** Contributes to inland catches, but no major fishery reported.

**Local Names :-**

**Literature :** Nelson & Rothman (1973) give 31 references, many of them repetitive. There appears to be no published study on the biology of this species.

**Remarks :** Day (1878) seems to have been the only author to cite Sri Lanka (followed by Munro, 1955), but neither Nelson & Rothman (1973) nor Wongratana (1980) found specimens; Day also gave the Indus system, but again no specimens seem to be known. The Andaman record by Herre (1940) is perhaps doubtful too.



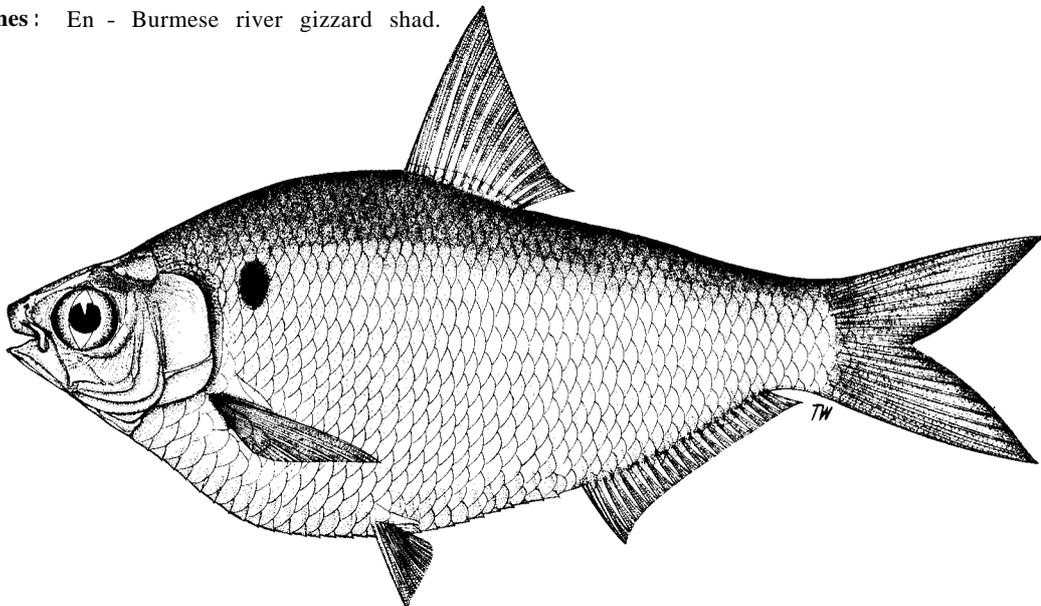
***Gonialosa modesta*** (Day, 1869)

CLUP Gon 2

*Chatoessus modestus* Day, 1869, *Proc.zool.Soc.Lond.*:622 (Bassein River, Burma, as high as Een-gay-gyee Lake).

**Synonyms :** *Gonialosa modesta* - Fowler, 1941:548 (compiled); Regan, 1917:315 (Burma); Whitehead, 1962:101 (key); *Idem*, 1971:73, pl. 2a (Day's figure) (types of *modesta*); Nelson & Rothman, 1973:149, fig. 5A (photo) (synon., descr., refs); Whitehead & Talwar, 1976:155 (types of *modesta* listed); Wongratana, 1980:187, pls 144, 145 (revision).

**FAO Names:** En - Burmese river gizzard shad.



**Diagnostic Features :** A riverine gizzard shad; body very deep, its depth 40 to 45% of standard length, strongly compressed, belly with 16 to 19 (usually 17 or 18) + 10 to 12 (usually 11), total 27 to 30 (usually 29) scutes. Mouth inferior, upper jaw a little expanded at tip, but distinctly turned down, second supra-maxilla small (about half length of pre-maxilla). Scales moderate, 40 to 50 in lateral series. Resembles G. manmina of Indian rivers, which is much more slender (depth 33 to 38% of standard length) and has smaller ecales (51 to 71 in lateral series); sympatric with G. whiteheadi, which has a subterminal mouth and a large second supra-maxilla (longer than pre-maxilla). Anodontostoma species usually have only 19 to 21 anal finrays (24 to 28 in G. modesta) and median instead of paired pre-dorsal scales. Other clupeids in Burmese freshwaters either have terminal mouths (Tenualosa, Gudusia, etc.), or a dorsal filament (Nematalosa).

**Geographical Distribution :** Rivers and associated waterbodies of Burma (Sittang River, Bassein River as high as Een-gay-gyee Lake, also Selwein River at Moulmein, south to Tenasserim River, but presumably also in the Irrawady).

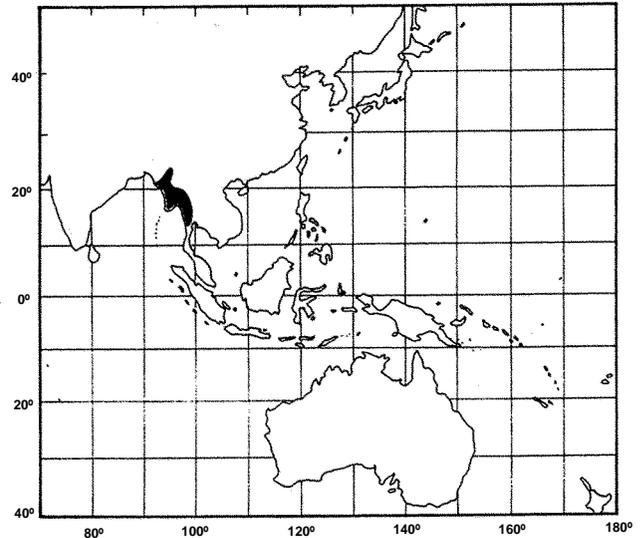
**Habitat and Biology :** Riverine and in pools and lakes. More data needed.

**Size :** To 10 cm standard length.

**Interest to Fisheries :** Contributes to inland catches, but no special fishery reported.

**Local Names :-**

**Literature :** Nelson & Rothman (1973) give 12 references, most of them repetitive. There appears to be no published study on the biology of this species.



**Gonialosa whiteheadi Wongratana, 1983**

CLUP Gon 3

Gonialosa whiteheadi Wongratana, 1983, Jap.J.Ichthyol., 29(4):394, fig. 10 (Kokariet, Tenasserim River, Burma).

**Synonyms :** None.

**FAO Names :** En - Southern Burmese river gizzard shad.

