Inland Fisheries Research and Development Institute (IFReDI)

For sustainable development of inland fisheries in Cambodia

BIOLOGICAL REVIEWS OF IMPORTANT CAMBODIAN FISH SPECIES, BASED ON FISHBASE 2004.

Volume 2: *Pangasius larnaudii; Clarias batrachus; Cirrhinus microlepis; Leptobarbus hoevenii; Thynnichthys thynnoides; Trichogaster microlepis; Trichogaster pectoralis; Anabas testudineus; Boesemania microlepis; Oxyeleotris marmorata.*

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Volume 2:

Catfishes	*Pangasius larnaudii; Clarias batrachus*
Cyprinids	*Cirrhinus microlepis; Leptobarbus hoevenii; Thynnichthys thynnoides*
Gouramis	*Trichogaster microlepis; Trichogaster pectoralis*
Perch	*Anabas testudineus;*
Croaker	*Boesemania microlepis*
Goby	*Oxyeleotris marmorata*

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Our Commitment:
to contribute to food security and poverty eradication in developing countries.

A Way to Achieve This:
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We believe this work will be most successfull when undertaken in partnership with governments and nongovernment institutions and with the participation of the users of the research results.

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2006

Published by the WorldFish Center, P.O. Box 500 GPO, 10670 Penang, Malaysia and the Inland Fisheries Research and Development Institute, Phnom Penh, Cambodia.

Leng Sy Vann, Eric Baran, Chheng Phen and Touch Bun Thang. 2006. Biological reviews of important Cambodian fish species, based on FishBase 2004. Volume 2: *Pangasius larnaudii; Clarias batrachus; Cirrhinus microlepis; Leptobarbus hoevenii; Thynnichthys thynnoides; Trichogaster microlepis; Trichogaster pectoralis; Anabas testudineus; Boesemania microlepis; Oxyeleotris marmorata*.
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Boesemania microlepis; Oxyeleotris marmorata / Leng, S. V./ [et al.].
ISBN 99950-71-00-2
1. Fishes--Cambodia--Encyclopedias. I. Leng, S. V.

Cover photos: Baird I.G., JJ Photo, Roberts, T.R., Warren, T.

ISBN 99950-71-00-2

WorldFish Center Contribution No. 1808

The WorldFish Center is one of the 15 international research centers of the Consultative Group on International Agricultural Research (CGIAR) that has initiated the public awareness campaign, Future Harvest.

Contents

Introduction

This document results from the extraction and the editing by the authors of the information available in FishBase 2004.

FishBase is a biological database on fishes developed by the WorldFish Center (formerly ICLARM, the International Center for Living Aquatic Resources Management) in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and with the support of the European Commission (EC).

These synopses present a standardized printout of the information on the above-mentioned species incorporated in FishBase as of 11 May 2004 and are inspired by the format suggested for such documents by H. Rosa Jr. (1965, FAO Fish. Syn. (1) Rev 1, 84 p.)

We cannot guarantee the total accuracy of the information herein; also we are aware that it is incomplete and readers are invited to send complementary information and/or corrections, preferably in the form of reprints or reports to the FishBase Project, WorldFish Center, MC P.O. Box 2631, Makati, Metro Manila, 0718, Philippines.

Some hints on how to use the synopses

The following definitions are meant to help you better understand the way this synopsis presents information and documents its sources.

Please refer to the FishBase book for more details and do not hesitate to contact FishBase staff if you have suggestions or information that would improve the format or the contents of this synopsis.

SpecCode : Numeric FishBase code, assigned to a species and used for internal purposes only.

StockCode : Numeric FishBase code, assigned to the species in general, a wild population, or a cultured strain. Since, to date, only a few species have been separated into stocks, the StockCode usually refers to the species in general.

MainRef. : Numeric FishBase code corresponding to the reference used as a source for most of the information within a table.

Ref. : Numeric FishBase code corresponding to the reference associated with a specific entry or set of entries; when left empty, the source of information is the MainRef. Note that the references listed at the end of this synopsis are arranged according to their numeric codes, and not alphabetically.

Empty fields : Imply information that is currently not available to the FishBase project and/or information which is available but which has not been entered as of 31-Mar-04. Note that the character 0 (zero) is used as a valid numerical value, and does not indicate that no information is available.

Choice fields : Much of the information in this synopsis was entered via multiple choice fields; the available alternatives must be considered when evaluating the wisdom of a given choice.

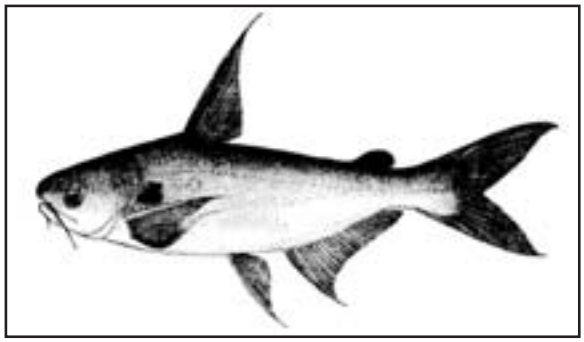
Remarks or Comment fields : The free text included in such fields may have been taken verbatim from the source in "Ref.", in which case this should be regarded as a direct citation (but lacking quotation marks); alternatively, the text may have been modified/adapted from one or several sources. In the latter case, additional "Ref." numbers may be incorporated in the text.

PANGASIUS LARNAUDII

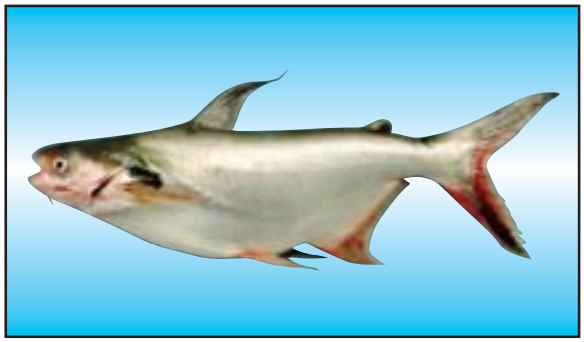
(Bocourt, 1866)

Spot pangasius

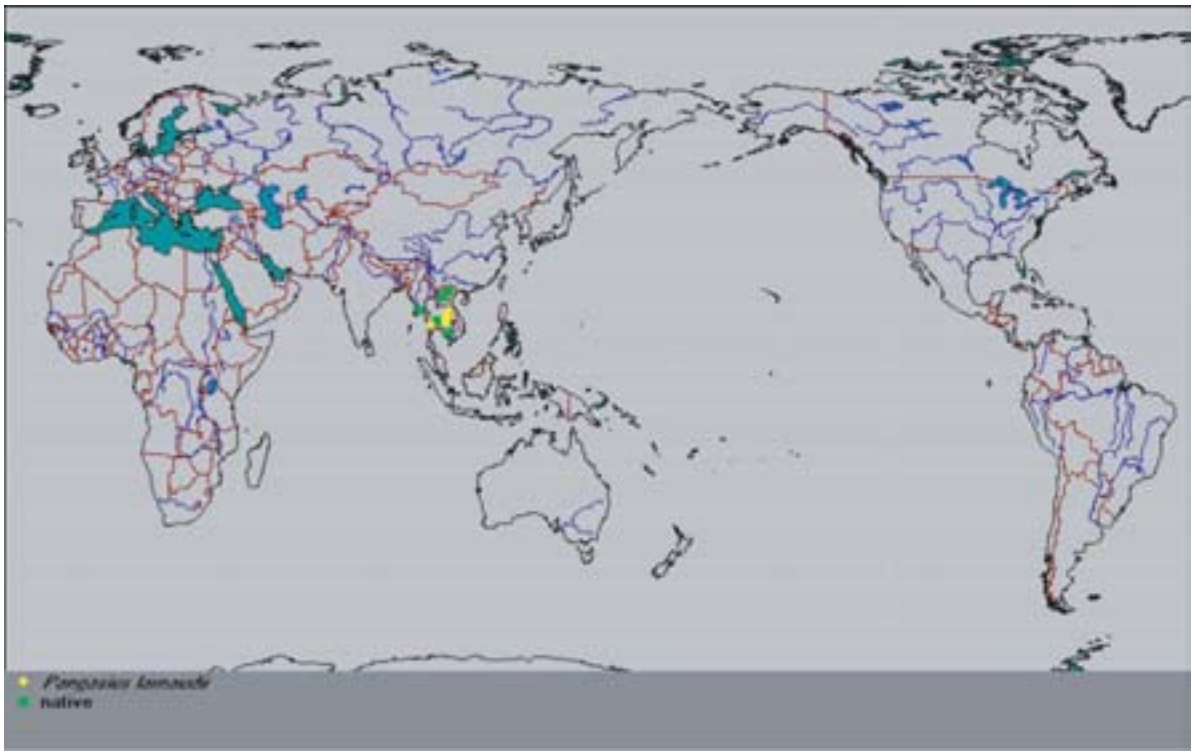
ត្រីពោ



Picture by **FAO**



Picture by **Warren, T.**



1.1. Summary information on the family Pangasiidae

Family	: Pangasiidae (Shark catfishes)	
Order	: Siluriformes	MainRef. : 007463
Class	: Actinopterygii (Ray-finned fishes)	FamCode : 134
Number of genera	: 2	
Number of species	: 21	
Occurs in	: O Marine	
	☑ Brackish	
	☑ Freshwater	
Aquarium fishes	: some	
First fossil record	: Lower Tertiary Eocene	Ref. : 004830
Species currently in FishBase: Genera: 5	Species: 30 (Including subspecies)	Complete: Yes

Remarks:

Distribution: Southern Asia (Pakistan to Borneo). Barbels: usually two pairs: 1 pair of chin barbels. No nasal barbels. Compressed body. With small adipose fin, separate from caudal fin. Dorsal fin close to head region; 1 or 2 spines, 5-7 soft rays. Anal fin: 26-46 rays. Vertebrae: 39-52. Maximum length about 3 m. Maximum weight 300 kg (Pangasius gigas).
Etymology : The Vietnamese name of a fish

1.2. Information on the genus *Pangasius* and its synonyms

After Eschmeyer, March 2003 (Ref. 46206)

Neopangasius Status : synonym Gender : masculine
Popta, 1904, p. 180, CAS Ref: 3547
Type by monotypy.
Type species : *Neopangasius nieuwenhuisii* Popta, 1904
Current genus : *Pangasius*

Pangasianodon Status : valid Gender : masculine
Chevey, 1931, p. 538, CAS Ref: 830
Type by monotypy.
Type species : *Pangasianodon gigas* Chevey, 1931
Current genus : *Pangasius*

Pangasius Status : valid Gender : masculine
Valenciennes in Cuvier & Valenciennes, 1840, p. 45, CAS Ref: 1008
Type by monotypy.
Type species : *Pangasius buchanani* Valenciennes, 1840
Current genus : *Pangasius*

Pseudolais Status : synonym Gender : feminine
Vaillant, 1902, p. 51, CAS Ref: 4490
Type by monotypy.
Type species : *Pseudolais tetranema* Vaillant, 1902
Current genus : *Pangasius*

Pseudopangasius Status : synonym Gender : masculine
Bleeker, 1862, p. 399, CAS Ref: 391
Type by original designation (also monotypic).
Type species : *Pangasius polyuranodon* Bleeker, 1852
Current genus : *Pangasius*

Pteropangasius Status : valid Gender : masculine
Fowler, 1937, p. 142, CAS Ref: 1425
Type by original designation (also monotypic).
Type species : *Pangasius cultratus* Smith, 1931
Current genus : *Pangasius*

1.3. General information on *Pangasius larnaudii*

Class : Actinopterygii (Ray-finned fishes) MainRef. 007432
Order : Siluriformes
Family : Pangasiidae (Shark catfishes)
Species : *Pangasius larnaudii*
Author : Bocourt, 1866
Spelling Eschmeyer, pers. comm.

Environment
Freshwater : Yes Habitat : Benthopelagic
Brackish : No
Saltwater : No

Importance
Importance to fisheries : Commercial Ref. 037772
Main catching method :
Other methods : ☑ Seines ☑ Gillnets O Castnets ☑ Traps O Spears
O Trawls O Dredges O Liftnets ☑ Hooks+Lines O Other
Used for aquaculture : Commercial Ref. 004537
Used as bait : Never/rarely
Aquarium fish : Never/rarely
Game fish : No
Dangerous fish : Harmless
Electrobiology : No special ability

Size and age
Maximum length (cm) (male/unsexed) : 130 SL (female) : Ref. 030857

Remarks:

Occurs in medium to large-sized rivers (Ref. 12975). Inhabits deep pools in the river (Ref. 37770). Found in rapids and riffle (Ref. 37771). Enters flooded forest (Ref. 9497). Artificially reared fry of 3.5 mm at 12 hrs., 8.4 mm at 4 days, 8.8 mm at 8 days and 23 mm at 18 days. Larval teeth present in 12 hr and 4 day larvae. Feeds on shrimps, small fishes, gastropods and plants (Ref. 6459). Migrates into floodplains and spawns at the beginning of the flood season (Ref. 12693).

1.4. Synonyms, misidentifications, etc. used for *Pangasius larnaudii*

Synonym	Author	Status	Ref.
Pangasius burgini	Fowler, 1937	junior synonym	007432
Pangasius larnaudei	Bocourt, 1866	misspelling	007432
Pangasius larnaudi	Bocourt, 1866	original combination	001632
Pangasius larnaudiei	Bocourt, 1866	misspelling	007432
Pangasius larnaudieri	Bocourt, 1866	misspelling	007432
Pangasius larnaudii	Bocourt, 1866	original combination	007432
Pangasius taeniura	Fowler, 1935	junior synonym	007432
Pangasius taeniurus	Fowler, 1935	junior synonym	007432

1.5. Common names for *Pangasius larnaudii*

Name	Language	Country	Ref.
Po	Khmer	Cambodia	040380
Trey po	Khmer	Cambodia	012693
Trey Po Thmau Trâchiek	Khmer	Cambodia	036654
Beung	Laotian	Lao People's Dem. Rep.	040382
Pa hou mat	Laotian	Lao People's Dem. Rep.	004792
Pa pboong	Laotian	Lao People's Dem. Rep.	009497
Pa peung	Laotian	Lao People's Dem. Rep.	037767
Pba beung	Laotian	Lao People's Dem. Rep.	037771
Pla chai por	Thai	Thailand	042982
Pla hou mat	Thai	Thailand	006459
Pla the pho	Thai	Thailand	006459
Sang kaward	Thai	Thailand	009648
Tepo	Thai	Thailand	009648
Spot pangasius	English	USA (contiguous states)	004537
Cá vo dèm	Vietnamese	Viet Nam	036625

1.6. Distribution of *Pangasius larnaudii*

Asia: Mekong and Chao Phraya Basins. MainRef.: 007432
Latitudinal range: 20° N- 10° N Temperature range: - °C
Status of threat: NL.

Country **Status** **Ref.**

Cambodia **native** **012693**

Occurs in the Mekong Basin (Ref. 12693, 27732). Found below the Khone Falls to the Tonle Sap River and the Tonle Sap Lake (Ref. 37772). Reared in ponds as well as in weirs around the Tonle Sap Lake (Ref. 36686). May be put on ice around the Tonle Sap Lake for shipment to Thailand (Ref. 12693). Also Ref. 36654, 33813.

Lao People's Dem. Rep. **native** **027732**

Occurs in the Mekong tributary, the lower Xe Bangfai Basin (Ref. 27732). Found in the Khone Falls (Ref. 37772). Collected from Tha Ngon in the Mekong Basin (Ref. 4792) and from Ban Hang Khone, a village on an island in the middle of the mainstream Mekong River just below the Great Khone Waterfalls in Khong District, Champasak Province (Ref. 37767). Enters flooded forest in Ban Hang Khone, Don Khone, just below the great waterfalls at Lee Pee (Ref. 9497). Undertakes upstream migration during the wet season in May-July through Hoo SomYai at the Great Fault Line on the Mekong River, Champasak Province (Ref. 37771). Also Ref. 9497, 30857, 37771, 43281, 44002.

Myanmar **native** **041485**

Upstream migration during May to September in Khone Falls, downstream migration at Chieng Khan, Loei province from May to September (Ref. 41485).

Thailand **native** **026336**

Occurs in the Mekong and Chao Phraya Basins (Ref. 27732) and Maeklong Basin (Ref. 26336). Not found in the markets of Bangkok a century ago because it was expensive and reserved for consumption by important people; it was raised in water courses closed off by bamboo grills (Ref. 7432). Also Ref 1632, 6459, 9648, 41485.

Viet Nam **native** **027732**

Occurs in the Mekong Basin (Ref. 27732). Below the Khone Falls from Dong Thap Province to the Khone Falls, it migrates upstream at the start of the dry the season, triggered by the receding water levels (Ref. 37770). Also Ref. 36625, 37770.

1.7. Summary information (no. of records) available for *Pangasius larnaudii*

Level: species in general **StockCode: 07432** **MainRef.: 007432**

Asia: Mekong and Chao Phraya Basins.

Ecology	1	Max. sizes	0	Strains	0
Food Items	7	FAO catches	15502	Diseases	0
Food consumption	0	Genetics	1	Ciguatera	0
Diet composition	0	Allele frequency	0	Ecotoxicology	0
Ration	0	Heritability	0	Metabolism	0
Predators	0	Reproduction	1	Gill area	0
Morphology	1	Spawning	1	Swimming type	0
Processing	0	Eggs	0	Swimming speed	0
Growth/mortality	0	Egg dev't.	0	Vision	0
Maturity	0	Larvae	0	Brains	0
Recruitment	0	Larval dynamics	0	Introductions	0
L/W relat.	1	Aquaculture	0	Occurrence	31

Total = 1

1.8. Morphology of *Pangasius larnaudii*

Level : species in general **StockCode : 012326** **Main Ref.: 027732**

Diagnostic Characters

A large black spot above the base of the pectoral fin and a black longitudinal stripe along each caudal lobe (Ref. 27732). Dorsal and pectoral fins with a strong spine and a long, filamentous ray (Ref. 4792). With 13-17 gill rakers in first arch (Ref. 12693)

Descriptive Characters

Striking features : none
Operculum : present

Teeth Presence

Vomerine : present
Palatine : present

Pigmentation on trunk and tail

Horizontal stripes : absent
Vertical stripes : absent
Diagonal stripes : absent
Curved stripes : absent

Spots : one spot only
Caudal fin anal : one spot on stripe

Meristic Characters
Gill rakers : on lower limb total: 13-17

Dorsal fins
Number of fins : 1

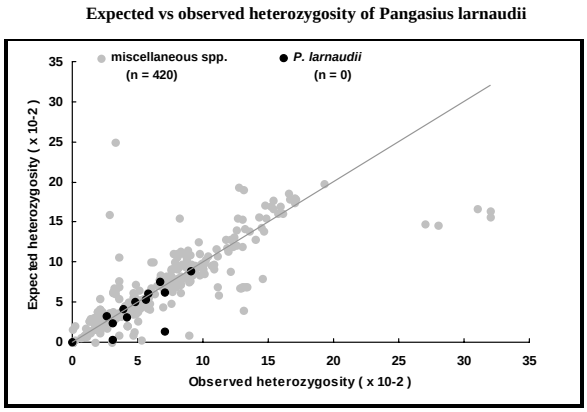
Caudal fin
Shape of fin : forked
Attributes : more or less normal

Anal fin
Number of fins soft rays total: 28-32

Paired fins
Pectoral attributes : more or less normal
Pelvics attributes : more or less normal
Position : abdominal, behind origin of D1

1.9. Genetic information for *Pangasius larnaudii*

Level : species in general **MainRef.: 009461**
Locality : Unspecified
Chromosome number (haploid) : 30
Chromosome number (diploid) : 60
Genetic marker(s) present : No



1.10. General information on the reproduction of *Pangasius larnaudii*

Level : species in general **StockCode : 012326** **MainRef : 041485**
Mode and type of reproduction
Mode : dioecism
Fertilization : external
Spawning frequency : one clear seasonal peak per year
Batch spawner : no
Reproductive guild : nonguarders Open water/substratum egg scatterers

Spawning Information for *Pangasius larnaudii*

Locality : Laos, Mekong River at Hoo Som Yai on the Great Fault Line, Champassack Season (% of mature females; 111= presence of mature females):

Stockcode: 012326
Main Ref.: 037771

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
								111	111		

1.11. Ecology of *Pangasius larnaudii*

Level : species in general **StockCode: 012326, 012000** **Main Ref.: 009497**

Habitats

Streams : Yes Lake: Yes Cave: No
Estuaries/lagoons/brackish seas: No
Intertidal : No Soft : No Rocky : No Mangroves/marshes/swamps: No
Marine : No Oceanic : No Neritic : No Coral reefs: No
Tropical soft bottom : No Hard bottom: No Seagrass beds: No Macrophyte: No

Feeding

Feeding type : mainly animals (troph. 2.8 and up) Ref.: 009497
Feeding habit : hunting macrofauna (predator)

Trophic level(s):	**Original sample**		**Unfished population**		**Remarks**
Estimation method	Troph	s.e	troph	s.e	
From indiv. food item:	3.3	0.53	-	-	Trophic level estimate

Additional remarks

Feeds heavily on fruits and enters the flooded forest in high water (Ref. 9497). Also feeds on fish, crustaceans and mollusks (Ref. 9459).

1.12. Food items for *Pangasius larnaudii*

Level: species in general **StockCode: 012326**

Food item			Ref.
detritus			
detritus	debris	unidentified	037771
nekton			
finfish	bony fish	unidentified	033813
		unidentified fish	049196
plants			
other plants	terrestrial plants	unidentified fruits	009497
zoobenthos			
benth. crust.	n.a./other benth. crustaceans	unidentified crustaceans	049196
	shrimps/prawns	unidentified	006459
mollusks	gastropods	unidentified	006459

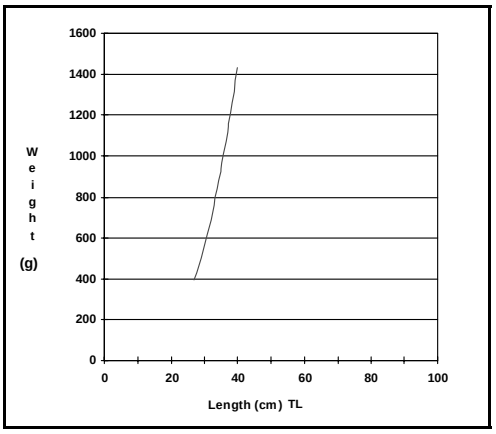
Total: 7

1.13. Length-Weight relationships of *Pangasius larnaudii*

(W = a * L^b with Length in cm and Weight in g)

Locality	Laos, Mekong River at Hoo Som Yai on the Great Fault Line			StockCode : 012326
Length range	: 34 - 75 TL	Sample size	: 194	MainRef.: 037771
a	: 0.0034	Correlation coefficient	: 0.9643	Ref.: 037771
b	: 3.279		Sex : unsexed	

L-W relationship(s) of *Pangasius larnaudii*



This graph is meant to provide a general impression of the relationship between body length and weight in this species. See the L-W tables for details.

1.14. References used for *Pangasius larnaudii*

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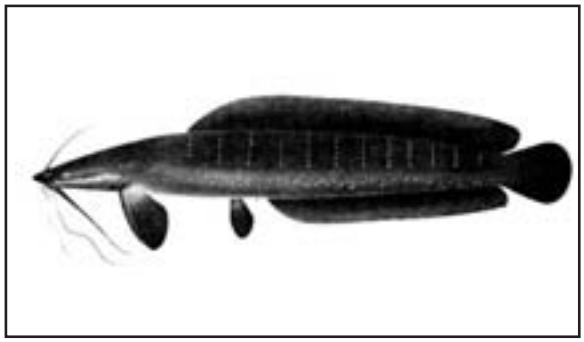
CLARIAS BATRACHUS

(Linnaeus, 1758)

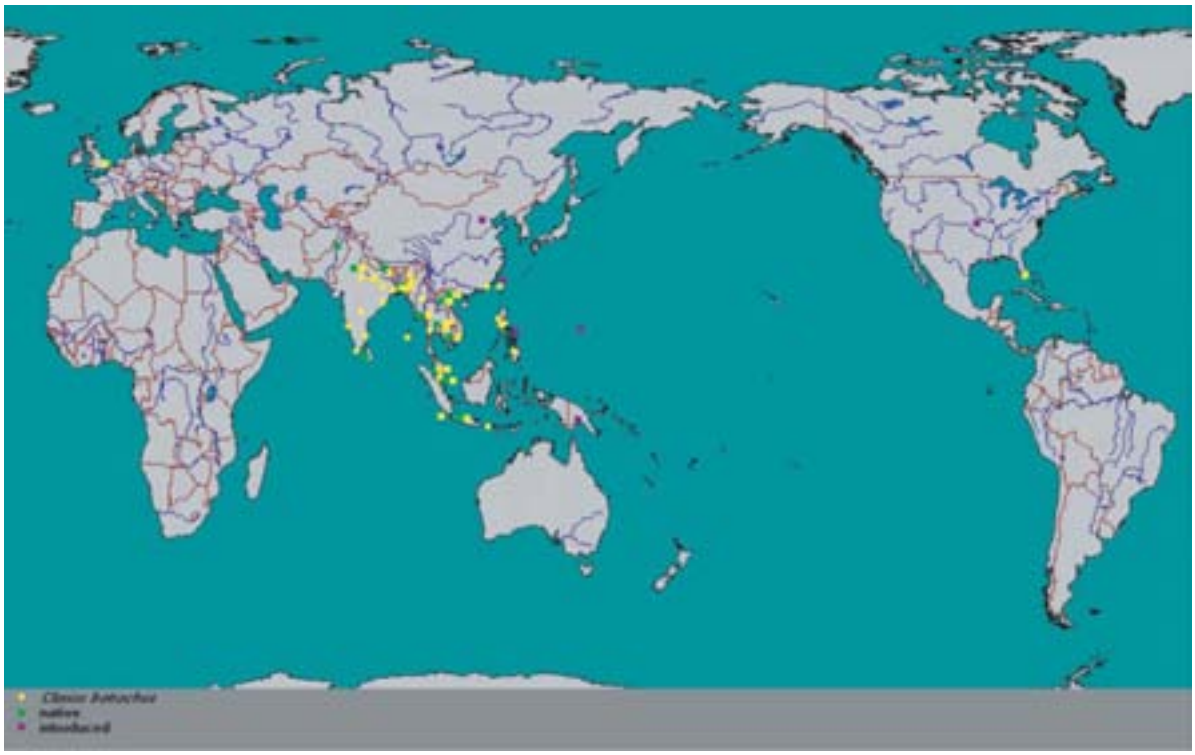
Walking catfish

ត្រីអណ្តែច



Picture by **FAO**

Picture by **Baird I.G**



2.1. Summary information on the family Clariidae

Family	: Clariidae (Airbreathing catfishes)	MainRef.: 007463
Order	: Siluriformes	FamCode: 139
Class	: Actinopterygii (Ray-finned fishes)	
Number of genera	: 13	
Number of species	: 100	
Occurs in	: O Marine	
	O Brackish	
	⊘ Freshwater	

Aquarium fishes: some
Species currently in FishBase: Genera: 15 Species: 104 (Including subspecies) Complete: Yes

Remarks:

Distribution: Africa, Syria and southern and western Asia (Philippines to Java). Dorsal fin extending over much of body length. Dorsal fin rays usually over 30 without a leading spine. Dorsal fin discontinuous or united to caudal fin. Rounded caudal fin. Wide gill openings. Barbels: 4 pairs. Airbreathing is accomplished with a labyrinthic organ arising from the gill arches ('labyrinth catfishes'). Some species are capable of travelling over short distances on land ('walking catfishes'). Some are burrowers with small eyes and the pectoral and pelvic fins small or lacking.
Etymology: Clariidae: Latin, clarias, -a, -um = shining

2.2. Information on the genus *Clarias* and its synonyms

After Eschmeyer, March 2003 (Ref. 46206)

Anguilloclarias Status: synonym Gender: masculine
Teugels, 1982, p. 13, CAS Ref: 6670
Type by original designation.
Type species : *Clarias theodorae* Weber, 1897
Current genus : *Clarias*

Brevicephaloides Status: synonym Gender: masculine
Teugels, 1982, p. 14, CAS Ref: 6670
Type by original designation.
Type species : *Clarias camerunensis* Lönnberg, 1895
Current genus : *Clarias*

Clarias Status: valid Gender: masculine
Scopoli (exGronow), 1777, p. 455, CAS Ref: 3990
Type by subsequent designation.
Type species : *Silurus anguillaris* Linnaeus, 1758
Current genus : *Clarias*

Clarias Status: on official index Gender : masculine
Gronow, 1763, p. 100, CAS Ref: 1910
Type of species :
Current genus : *Clarias*

Clarioides Status: not valid Gender : masculine
David in David & Poll. 1937.p. 231, CAS Ref.: 1043
Type of species : *clarias angolensis* Steindachner, 1866

Cossyphus Status: preoccupied Gender: masculine
McClelland, 1844, p. 403, CAS Ref: 2927
Type by monotypy.
Type species : *Cossyphus ater* McClelland, 1844
Current genus : *Clarias*

Dinotopteroides Status: valid subgenus Gender: masculine
Fowler, 1930, p. 41, CAS Ref.: 1406
Type by original designation (also monotylic)
Type species : *Dinotopteroides prentissgrayi* Fowler , 1930
Current genus : *Claria*

Heterobranchoides Status: synonym Gender: masculine
David, 1935, p. 82, 99, CAS Ref: 5559
Type species : *Current genus*

Macropteronotus Status: synonym Gender: masculine
Lacepède, 1803, p. 84, CAS Ref: 4930
Type by monotypy.
Type species : *Macropteronotus charmuth* Lacepède, 1803
Current genus : *Clarias*

Phagoru Status: synonym Gender: masculine
McClelland, 1844, p. 225, CAS Ref: 2928
Type by monotypy.
Type species : *Cossyphus ater* McClelland, 1844
Current genus : *Clarias*

Platycephaloides Status: synonym Gender: masculine
Teugels, 1982, p. 11, CAS Ref: 6670
Type by original designation.
Type species : *Clarias platycephalus* Boulenger, 1902
Current genus : *Clarias*

Prophagorus Status: synonym Gender: masculine
Smith, 1939, p. 236, CAS Ref: 4055
Type by original designation (also monotypic).
Type species : *Clarias nieuhofii* Valenciennes, 1840
Current genus : *Clarias*

2.3. General information on *Clarias batrachus*

Classification

Class : Actinopterygii (Ray-finned fishes) MainRef. 001479
Order : Siluriformes
Family : Clariidae (Airbreathing catfishes)
Species : *Clarias batrachus*
Author : (Linnaeus, 1758) Author Ref. 001652

Environment

Freshwater : Yes
Brackish : Yes
Saltwater : No
Habitat : Demersal
Migrations : Potamodromous
Depth range : 1

Importance

Importance to fisheries : Commercial

Other methods : ☑ Seines ☑ Gillnets ☑ Castnets O Traps O Spears
O Trawls O Dredges O Liftnets ☑ Hooks+Lines O Other

Used for aquaculture	: Commercial	Ref.007306
Used as bait	: Never/rarely	
Aquarium fish	: Commercial based mainly on capture	Ref.001672
Game fish	: No	
Dangerous fish	: Potential pest	Ref.004690
Electrobiology	: No special ability	

Size and age

Maximum length (cm) (male/unsexed)	:	47 TL	(female):	Ref. 040637
Common length (cm) (male/unsexed)	:	26.25 TL	(female):	Ref. 012193
Maximum weight (g) (male/unsexed)	:	1,190.00	(female):	Ref. 040637

Remarks:

Inhabits swamps, ponds, ditches, rice paddies, and pools left in low spots after rivers have been in flood (Ref. 2854). Usually confined to stagnant, muddy water (Ref. 1479). Found in medium to large-sized rivers, flooded fields and stagnant water bodies including sluggish flowing canals (Ref. 12975). Undertakes lateral migrations from the Mekong mainstream, or other permanent water bodies, to flooded areas during the flood season and returns to the permanent water bodies at the onset of the dry season (Ref. 37770). Can live out of water for quite some time and move short distances over land (Ref. 4833). Can walk and leave the water to migrate to other water bodies using its auxiliary breathing organs. The Lao use this fish as lap pa or ponne pa. Feeds on insect larvae, earthworms, shells, shrimps, small fish, aquatic plants and debris (Ref. 6459). An important food fish (Ref. 4833). Marketed live, fresh and frozen (Ref. 9987).

2.4. Synonyms, misidentifications, etc. used for *Clarias batrachus*

Synonym	Author	Status	Ref.
Clarias assamensis	Day, 1877	junior synonym	004833
Silurus batrachus	Linnaeus, 1758	original combination	041236
Clarias batrachus	Linnaeus, 1758	new combination	041236
Macropteronotus jagur	Hamilton, 1822	junior synonym	041236
Clarias jagur	Hamilton, 1822	junior synonym	041236
Macropteronotus magur	Hamilton, 1822	questionable	001479
Clarias magur	Hamilton, 1822	questionable	004833
Clarias punctatus	Valenciennes, 1840	junior synonym	041236

2.5. Common names for *Clarias batrachus*

Name	Language	Country	Ref.
Trey andaing roueng	Khmer	Cambodia	012693
Trey andeng	Khmer	Cambodia	002686
Trey andèng	Khmer	Cambodia	036654
Magur	English	India	004833
Ikan lele	Malay	Malaysia	002686
Keli	Malay	Malaysia	004789
Ikan keling	Malay	Indonesia	006107
Ikan lele	Malay	Indonesia	040977
Leleh	Malay	Indonesia	006107

Pa douk	Laotian	Lao People's Dem. Rep.	002686
Nga-khoo	Burmese	Myanmar	002686
Toyman's spotted catfish	English	Myanmar	005736
Hito	Tagalog	Philippines	002854
Hitong batukan	Tagalog	Philippines	002854
Pantat	Tagalog	Philippines	002854
Pla duk	Thai	Thailand	042982
Pla duk dam	Thai	Thailand	002686
Pla duk dan	Thai	Thailand	042982
Pla duk nam jued	Thai	Thailand	042982
Walking catfish	English	United Kingdom	012693
Clarias catfish	English	USA (contiguous states)	004537
Walking catfish	English	USA (contiguous states)	000276

2.6. Distribution of *Clarias batrachus*

Asia: Mekong and Chao Phraya Basins, Malay Peninsula, Sumatra, Java, Borneo. MainRef.: 027732 Reported from Sri Lanka; popular for aquaculture in its native range but not regarded as such in other Southeast Asian countries. Trade restricted in Germany (Ref. 1739). Several countries report adverse ecological impact after introduction.

Latitudinal range: 29° N - 7° S Temperature range: 20 - 25 °C Ref.: 1672
Status of threat: NL.

Country	**Status**	**Ref.**
Bangladesh	**native**	**001479**

Also Ref. 4833, 39989, 41236, 43638.

Cambodia	**native**	**027732**

Occurs in the Mekong Basin (Ref. 27732), Tonle Sap and Great Lake (Ref. 33813). Much more common in flood-plain lakes than in the Mekong mainstream (Ref. 37770). Also Ref. 36654, 37772.

China	**introduced**	**001739**

Established in ponds in Kwantung and Yunnan provinces (Ref. 1739). Known from the Mekong Basin in Yunnan (Ref. 27732). Also Ref. 36654.

Guam	**introduced**	**001739**
India	**native**	**004833**

Occurs in freshwater plains of India (Ref. 45255). Found in Chilka Lake (Ref. 29108); Maharashtra (Ref. 43634). Also Ref. 1739, 41236, 43638.

Indonesia	**native**	**002847**

Occurs in Sumatra, Java and Borneo (Ref. 27732). First translocated to the Lake Sentani region, but occurs now in the Vogelkop Peninsula on the Prafi Plain near Manokwari and in the Sorong district, Irian Jaya (Ref. 2847). Also introduced to Sulawesi (Ref. 7050). Found in Great Sunda Islands (Ref. 36654). Also Ref. 39637, 41236, 43638.

Lao People's Dem. Rep.	**native**	**043281**

Occurs in the Mekong Basin (Ref. 43281). Found in the middle Xe Bangfai, and the middle Nam Theun (Ref. 27732, 2686), Pak Beng to the Mun-Chin River (Ref. 37772) and Ban Hang Khone, a village on an island in the middle of the mainstream Mekong River just below the Great Khone Waterfalls in Khong District, Champasak Province (Ref. 37767). Also collected from Tha Ngon, Tha Bo and Hatsalao in the Mekong Basin (Ref. 4792). Found in paddies, swamps and canals at Vientiane, Savannakhet and Pakse (Ref. 4792). In Khammouan Province, movement into small streams is triggered by the first heavy rains at the end of the dry season (Ref. 37770). Spends the dry season living around rocks in the main river (Ref. 37770). Also Ref. 30857.

Malaysia	**native**	**027732**

Occurs in the Malay Peninsula.

Myanmar	**native**	**004833**

Also Ref. 2686, 41236, 43638.

Nepal **native** **009496**

Found in Bheri, Janakpur, Gandaki, Koshi, Lumbini and Narayani zones at 76-120 m altitude. Also Ref. 41236, 43638.

Pakistan **native** **036654**

Also Ref. 41236, 43638.

Papua New Guinea **introduced** **002847**

Known from the Lake Sentani region, Vogelkop Peninsula on the Prafi Plain near Manokwari, in the Sorong district (Ref. 2847) and in Western Province (Ref. 50786). Also Ref. 9420.

Philippines **introduced** **012157**

Completely dominated natural populations in lakes and rivers and the indigenous *Clarias macrocephalus* which can hardly be found in the markets today. Occurs in swamps, ponds, ditches, rice paddies, and pools left in low spots after rivers have flooded (Ref. 2854). Specimens were collected from Ambacan River at Makinhas and Butigan, Leyte in 1993 (Ref. 7223). Known from Lake Mainit, Mindanao (Ref. 4867). A cheap food fish in Laguna de Bay and not a preferred fish because of its tough flesh. Museum specimens collected in 1984 from east bay, LRS-83120 (Ref. 13460). Also found in Lake Buluan (Ref. 13492) and Lake Taal (Ref. 13446). Used in the aquarium trade (Ref. 12157).Also Ref. 1739, 7050, 12550, 36654, 43638.

Singapore **native** **041236**

Also Ref. 43638.

Sri Lanka **native** **006028**

Occurrence needs verification; possibly a misidentification of *C. brachysoma*. Also Ref. 1739, 4833.

Taiwan **introduced** **001739**

First successful larviculture in Taiwan not known (Ref. 40297).

Thailand **native** **026336**

Occurs in the Chao Phraya, Mekong, Maeklong, Salween, Peninsular and Southeast Thailand river systems (Ref. 26336). Recorded from Chiengmai (Chiang Mai), Me Poon, Pitsanulok, Bangkok, and Tale Sap (Ref. 1632). Highly priced food fish. Consumed fresh (Ref. 6459). Also Ref. 9648, 27732, 37773, 39637.

USA (contiguous states) **introduced** **001739**

Established in peninsular Florida. Abundant in southern and central Florida (Ref. 5723). Also Ref. 9987.

Viet Nam **native** **027732**

Occurs in the Mekong Basin (Ref. 27732). Also Ref. 2682, 36625, 46452.

2.7. Introductions of *Clarias batrachus*

Level: species in general

Asia: Mekong and Chao Phraya Basins, Malay Peninsula, Sumatra, Java, Borneo. Reported from Sri Lanka; popular for aquaculture in its native range but not regarded as such in other Southeast Asian countries. Trade restricted in Germany (Ref. 1739). Several countries report adverse ecological impact after introduction.

Year	: 1978	Established : probably no	Ref. 013686
Introduced	: to China Main from Thailand		
Reason	: aquaculture		
Comments	: Established in ponds in Kwantung and Yunnan provinces; useful and widely used for small pond culture.		

Year	: 1972	Established : yes	Ref. 001739
Introduced	: Thailand to Taiwan		
Reason	: aquaculture		
Comments	: Has achieved considerable popularity as a culture organism. Has hybridized with local *Clarias fuscus* and has spread all over the island to the extent that *C. fuscus* faces local extinction.		

Year : unknown Established : yes
Introduced : to Guam from Unknown
Reason : unknown
Comments : Established species.

Year : 1970 Established : no Ref. 001739
Introduced : to Hong Kong from Thailand
Reason : aquaculture
Comments : Intolerant of cold and not as popular as the local *Clarias fuscus*.

Year : 1930 Established : yes Ref. 001739
Introduced : to Indonesia from Java
Reason : aquaculture
Comments : Widespread but undesirable; elimination was also attempted. Established feral populations (Ref. 9421). First introduced to the Lake Sentani region, but occurs now in the Vogelkop Peninsula on the Prafi Plain near Manokwari and in the Sorong District (Ref. 2847).

Year : unknown Established : yes Ref. 001739
Introduced : to Papua N. Guin. from Unknown
Reason : unknown
Comments : First introduced in Lake Sentani region and later also found in the Vogelkop Peninsula on the Prafi Plain near Manokwari and in the Sorong district (Ref. 2847). Has been encountered by villagers on the middle Bjnsbach around 1995 (Ref. 0786).

Year : 1972 Established : yes Ref. 006096
Introduced : to Philippines from Thailand
Reason : aquaculture
Comments : The intensive dispersal of the species in Luzon in the 1970s led to the displacement of the native catfish in irrigation systems, lakes and rivers (Ref. 48328). Has completely dominated natural populations in lakes and rivers and the indigenous *Clarias macrocephalus* can hardly be found in the markets today. Grows better than local species but not as acceptable. (Ref. 1739). The species has been successfully established in Luzon, Mindoro, Negros, Panay and some parts of Mindanao (Ref. 48328).

Year : unknown Established : probably no Ref. 001739
Introduced : to UK from Southeast Asia
Reason : ornamental
Comments : Accidentally released from aquaria and breeds in heated effluent from a power station. Rarely found (Ref. 6375).

Year : 1960 - 1969 Established : yes Ref. 013686
Introduced : to USA from Thailand
Reason : ornamental
Comments : Introduced in the 1960s. Accidentally released from aquaria. Dominant in some swamp areas in Florida and regarded as a pest. This species became well established.

Year : 1960 - 1969 Established : yes Ref. 013686
Introduced : to USA from Java, Indonesia
Reason : ornamental
Comments : Introduced in the 1960s. Accidentally released from aquaria. Dominant in some swamp areas in Florida and regarded as a pest. This species became well established in the southern half of Peninsular Florida by 1978 (Ref.: 6029)

2.8. Summary information (no. of records) available for *Clarias batrachus*

Level: species in general **StockCode: 027732** **MainRef.: 027732**

Ecology	1	Max. sizes	2	Strains	0
Food items	9	FAO catches	15502	Diseases	61
Food consumption	0	Genetics	14	Ciguatera	0
Diet composition	1	Allele frequency	0	Ecotoxicology	3
Ration	0	Heritability	0	Metabolism	9
Predators	0	Reproduction	1	Gill area	1
Morphology	1	Spawning	6	Swimming type	1
Processing	1	Eggs	0	Swimming speed	0
Growth/mortality	0	Egg dev't.	0	Vision	0
Maturity	0	Larvae	0	Brains	0
Recruitment	0	Larval dynamics	0	Introductions	10
L/W relat.	1	Aquaculture	0	Occurrence	251

2.9. Morphology of *Clarias batrachus*

Level : species in general **StockCode : 003250** **Main Ref. 002847**

Diagnostic Characters

Body compressed posteriorly. Upper jaw a little projecting. Spine of pectoral fins rough on its outer edge and serrated on its inner edge (Ref. 4792). Occipital process more or less triangular, its length about 2 times its width (Ref. 27732); distance between dorsal and occipital process 4-5.5 times of distance from tip of snout to end of occipital process (Ref. 43281).

Descriptive Characters

Striking features : none
Body shape lateral : elongated dorsal head profile: more or less straight
Operculum present : Yes
Type of eyes : more or less normal

Teeth Presence

upper jaw : present

Pigmentation on trunk and tail

Horizontal stripes : absent
Vertical stripes : absent
Diagonal stripes : absent
Curved stripes : absent
Spots : no spots
Dorsal fin (D1) : no spots or stripes
Caudal fin : no spots or stripes
Anal fin (A1) : no spots or stripes

Meristic Characters

Lateral Lines

Interrupted : No
Scales on lateral line : -
Pored lateral line scales : -
Scales in lateral series : -
Scale rows above lateral line : -
Scale rows below lateral line : -
Scales around caudal peduncle : -

Barbels
Gill clefts (sharks/rays only) Spiracle :
Gill rakers on lower limbtotal : 23-23
on upper limb : -
Vertebrae preanal total : -
Dorsal fins
Dorsal attributes : no striking attributes
Number of fins : - spines total : 00- soft-rays total : 6076
Adipose fin : absent finlets dorsal : 0-0 finlets ventral : 0-0
Caudal fin
Shape of fin : more or less truncate
Attributes : more or less normal
Anal fin
Number of fins : - spines total : -00 soft-rays total : 4758
Paired fins
Pectoral attributes : more or less normal
spines : 1 soft-rays : 811
Pelvics attributes : more or less normal
position : abdominal behind origin of D1
spines : soft-rays : 66

2.10. Genetic information for *Clarias batrachus*

Main Ref.: 008943

Locality : Unspecified
Chromosome number (haploid) : 25
Chromosome number (diploid) : 0
Genetic marker(s) present : No
DNA content (picogram, haploid) : 1.2 Ref.: 002209
Chromosome arm no. : 88
Sex-determining mechanism : Chromosomes Ref: 027239

Remarks: *2n = 52 (Ref. 27272). Two NORs are present and these are situated at the terminal end of the short arms of chromosome 2 (Ref. 8941). CF = 16m + 8sm+ 14st and 12a. AN = 74 (Ref. 8947 and 27239). n = 27 (Ref. 2209). 2n = 56 and DNA content of haploid 0.92 (Ref. 12384). 2n = 52 (Ref. 8973). NORs present on the 11th pair of chromosomes.*

Main Ref.: 030184

Locality : China
Chromosome number (haploid) : 50
Chromosome number (diploid) : 100
Genetic marker(s) present : No
Chromosome arm no. : 110

Remarks: *CF = 4m + 6sm+ 78A, microchromosomes = 12.*

Main Ref.: 030184

Locality : Delhi, India
Chromosome number (haploid) : 26 Ref.: 029199
Chromosome number (diploid) : 52 Ref.: 029199
Genetic marker(s) present : No
Chromosome arm no. : 52 Ref.: 029199

Main Ref.: 030184

Locality : Unspecified
Chromosome number (haploid) : 26
Chromosome number (diploid) : 52
Genetic marker(s) present : No
Chromosome arm no. : 58

2.11. FAO aquaculture production data for *Clarias batrachus*

Country (Area)		**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**
		1991	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**
		1998	**1999**	**2000**	**2001**			
Cambodia (4)	(t)	60	110	110	110	110	200	235
	(US$'000)	90	165	120	165	272	340	423
	(t)	250	310	270	280	320	330	420
	(US$'000)	500	620	540	560	624	644	798
	(t)	460	510	500	540			
	(US$'000)	874	918	900	972			
Guam (6)	(t)	0	4	6	8	3	10	26
	(US$'000)	0	10	10	10	9	35	10
	(t)	16	14	16	16	16	18	18
	(US$'000)	64	56	64	64	64	72	72
	(t)	18	20	20	20			
	(US$'000)	72	80	80	80			
Singapore (4)	(t)	0	0	0	0	0	0	0
	(US$'000)	0	0	0	0	0	0	0
	(t)	0	0	0	0	0	0	0
	(US$'000)	0	0	0	0	0	0	0
	(t)	0	18	15	5			
	(US$'000)	0	37	44	8			
Total: 3	(mt)	60	114	86	98	173	210	261
	(US$'000)	90	175	135	155	281	375	514
	(mt)	266	324	286	296	336	348	438
	(US$'000)	564	676	604	624	688	716	870
(mt)	478	548	535	565				
(US$'000)	946	1,035	1,024	1,060				

2.12. Weight proportions and chemical composition of *Clarias batrachus*

Level : species in general **Stockcode: 003250**

Locality : Not specified Main Ref.: 009987

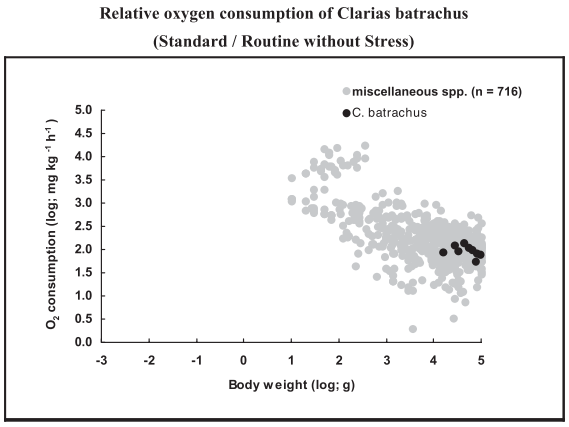
Chemical composition in percent

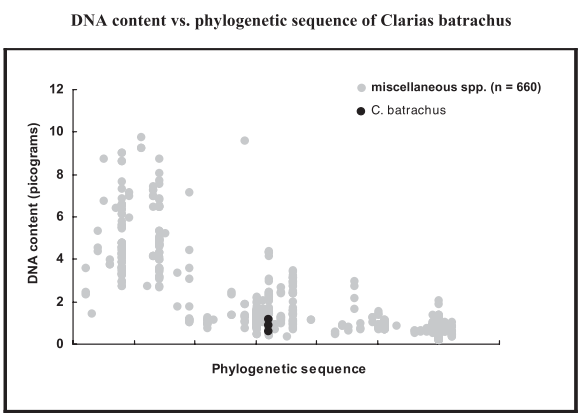
Body parts	Moisture	Protein	Fat	Ash
Meat/Fillet	76.5-	19.0-	3.0-	_

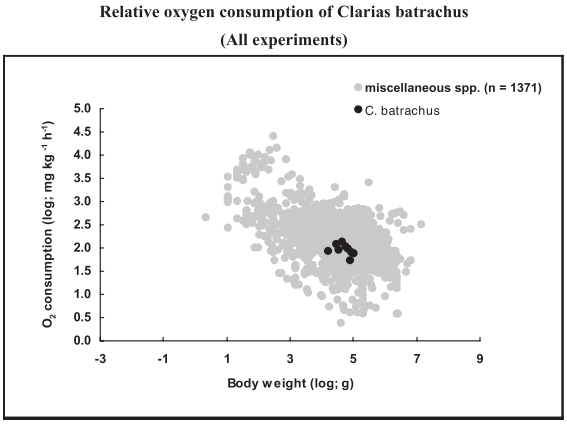
Comment: *Based on 100 g edible weight; contains 103 kcal. Can be fried, broiled and baked*

2.13. Gill area of *Clarias batrachus*

Gill area	:	146 (cm²)	Main Ref. 002302
Body weight	:	51.5 (g)	Data Ref. 002330
Gill area / weight	:	2.83 (cm²/g)	







2.14. General information on the reproduction of *Clarias batrachus*

Level : species in general **StockCode : 003250** **MainRef: 006868**

Mode and Type of Reproduction

Mode : dioecism
Fertilization : external
Spawning frequency : one clear seasonal peak per year
Batch spawner : no

Reproductive guild: guarders, nesters

The pair manifests the 'spawning embrace' which is widely observed in other catfish species (Ref. 33313). The pair gently nudges each other in the genital region and flicks their dorsal fins; male wraps his body around the female. Then the female releases a stream of adhesive eggs into the nest (Ref. 44091). In Southeast Asia, spawning period is during the rainy season, when rivers rise and fish are able to excavate nests in submerged mud banks and dikes of flooded rice fields (Ref. 40977).

Spawning Information for Clarias batrachus

Locality : Mekong mainstream **Stockcode: 003250**
Season (% of mature females; 111= presence of mature females): Main Ref.: 037770

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		111	111	111	111	111			111		

Comment: *Based on the occurrence of eggs during March-July and in October.*

Locality : Bangladesh Stockcode: 003250
Season (% of mature females; 111= presence of mature females): Main Ref.: 001479

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
				111	111	111					

Fecundity:	min	2,340 (n)	Female size	(g)	20.50 (cm)	Ref.: 001479
	max	13,400 (n)		(g)	30.20 (cm)	

Comment: *Spawns in shallow waters in inundated paddy fields.*

Locality : India Stockcode: 003250
Season (% of mature females; 111= presence of mature females): Main Ref.: 004833

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
						111	111				

Fecundity:	min	(n)	Female size	(g)	(cm)
	max	(n)		(g)	(cm)

Locality : Viet Nam, Mekong Deta Stockcode: 003250
Season (% of mature females; 111= presence of mature females): MainRef.: 037770

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
111	111	111	111	111	111	111	111	111	111	111	111

Comment: *Based on the occurrence of eggs throughout the year.*

Locality : Viet Nam, Mekong Basin at at Tien Giang province Stockcode: 003250
Season (% of mature females; 111= presence of mature females): Main Ref.: 037770

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
					111	111					

Comment: *Spawning occurs in the paddy field.*

Locality : Thailand Stockcode: 003250

Season (% of mature females; 111= presence of mature females): Main Ref.: 006459

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
				111	111	111	111	111	111		

Fecundity:	min	5,000 (n)	Female size	300 (g)	(cm)	Ref.: 001479
	max	13,400 (n)		800 (g)	(cm)	

Comment: *Eggs hatch within 20 hours at 25° - 32 ° C.*

2.15. Ecology of *Clarias batrachus*

Level : species in general **StockCode : 003250, 003054** **Main Ref.: 013497**

Habitats

Streams : No	Lakes : Yes	Caves : No	(exclusively) : No
Estuaries/lagoons/brackish seas : No			
Intertidal : No	Soft: No	Rocky : No	Mangroves/marshes/swamps : No
Marine : No	Oceanic: No	Neritic : No	Coral reefs: No
Tropical soft bottom: No	Hard bottom: No	Seagrass beds : No	Macrophyte : No

Feeding

Feeding type : mainly animals (troph. 2.8 and up)

Feeding habit : hunting macrofauna (predator) Ref 012975

Trophic level(s) :	**Original sample**		**Unfished population**		**Remarks**
Estimation method	Troph	s.e.	Troph	s.e.	
From diet composition	3.3	0.50	3.3	0.50	Troph of recruits/juven.
From indivi. food item	3.2	0.44	-	-	Troph of level estimate

Additional Remarks

Feeds mainly insects (Ref. 13479)

2.16. Food items for *Clarias batrachus*

Level: species in general **StockCode : 003250**

Food item			**Ref.**
detritus			
detritus	debris	*unidentified*	006459
nekton			
finfish	bony fish	*unidentified*	006459
	n.a./other finfish	*unidentified*	012975
plants			
other plants	benthic algae/weeds	*unidentified*	006459
zoobenthos			
benth. crust.	shrimps/prawns	*unidentified*	006459
insects	insects	*unidentified*	006459
mollusks	n.a./other mollusks	*unidentified shells*	006459
		unidentified	012975
worms	n.a./other annelids	*unidentified*	006459

2.17. Maximum weight/length/age of *Clarias batrachus*

Locality : India, Maharashtra StockCode : 003250
Max weight (g) : 350 total weight Ref. : 043634
Max length (cm) : Same specimen for WL : No Sex : unsexed

Locality : Nepal, None specified StockCode : 00325
Max weight (g): Ref. : 009496
Max length (cm) : 17.5 Same specimen for WL : No Sex : unsexed
Max age (yrs): Same specimen for LT : No

2.18. Length-Weight relationships of *Clarias batrachus*

(W = a * L^b with Length in cm and Weight in g.)
Locality : India, Bankura, West Bengal (aquaria) **StockCode: 003250**
Length range : - Main Ref: 009969
a : 0.024 Ref.: 009969
b : 2.5 Sex: unsexed

2.19. Diseases reported for *Clarias batrachus*

StockCode: 003250 Main Ref.: 042533
Parasitic infestations (protozoa, worms, etc.): Lytocestus disease Ref.: 026129
Causative agent : Lytocestus birmanicus
Occurrence : Barisal, Bangladesh, 1981

O eggs	O fry	☑ female	O in the wild
O larvae	O juveniles	☑ males	O in culture

Remarks: *Infestation commonly occurs in stomach and intestine. Besides 1981(Ahmed), the infestation also occurred in 1984 and 1985 (Ahmed et al.) in the locality of Dhaka. Ahmed and Ezaz also reported the infestation in 1997 but sited no specific locality.*

Parasitic infestations (protozoa, worms, etc.): Boviena disease Ref.: 026129
Causative agent : *Boviena serialis*
Occurrence : Barisal and Dhaka, Bangladesh, 1981

Remarks: *Infestation commonly occurs in the intestine. Besides 1981 (Ahmed), the infestation also occurred in 1984 and 1985 (Ahmed et al.) in the locality of Dhaka. Another infestation was recorded in 1997 (Ahmed and Ezaz) but without a specific locality.*

Parasitic infestations (protozoa, worms, etc.): Palaeorchis disease Ref.: 042533
Causative agent : *Palaeorchis sp.*
Occurrence : Barisal and Dhaka, Bangladesh, 1983

O eggs	O fry	O females	O in the wild
O larvae	O juveniles	O males	O in culture

Remarks: *Infestation commonly occurs in the stomach and intestine.*

Parasitic infestations (protozoa, worms, etc.): Pseudocaryophyllaeus infestation 2 Ref.: 042533
Causative agent : *Pseudocaryophyllaeus indica*
Occurrence : Barisal and Dhaka, Bangladesh, 1981

Remarks: *Infestation commonly occurs in the intestine. Besides 1981 (Ahmed), the infestation was also recorded in 1984 (Ahmed et al.) in Barisal and Dhaka, 1985 (Ahmed et al.) in Dhaka and in 1997 (Ahmed and Ezaz) with no specific locality mentioned.*

Parasitic infestations (protozoa, worms, etc.): Pseudolytocestus infestation Ref.: 042533
Causative agent : *Pseudolytocestus clariae*
Occurrence : Barisal, Chittagong, Dhaka, and Sylhet, Bangladesh, 1984

O eggso	☑ fry	☑ females	O in the wild
O larvae	☑ juveniles	☑ males	O in culture

Remarks: *Infestation commonly occurs in the intestine. Besides 1984 (Ahmed et al.), the infestation was also recorded in 1985 (Ahmed et al.) in Dhaka, and in 1974 (Anon.) and 1997 (Ahmed and Ezaz) with no specific locality mentioned.*

Parasitic infestations (protozoa, worms, etc.): Lytocestus infestation 1 Ref.: 042533
Causative agent : *Lytocestus indicus*
Occurrence : Barisal, Chittagong, Dhaka, Rajshani, Sylhet, Bangladesh, 1977

Remarks: *Infestation commonly occurs in the stomach and intestine. Besides 1977 (Ahmed and Sanaullah), the infestation also occurred in 1981 (Ahmed) in Dhaka and Barisal, 1983 (Rashid et al.), 1984 (Rashid and Haque) and 1985 (Rashid et al.; Ahmed et al.) in the locality of Dhaka, 1984 (Ahmed et al.) in the localities of Barisal, Chittagong, Dhaka, Rajshani, Sylhet and 1997 (Chandra et al.). There are reports of the infestation in 1976, 1977, 1978, 1979 (Ahmed and Sanaullah) and 1997 (Ahmed and Ezaz) with no specific locality cited.*

Parasitic infestations (protozoa, worms, etc.): Lytocestus infestation 3 Ref.: 042533
Causative agent : *Lytocestus parvulus*
Occurrence : Barisal, Chittagong, Dhaka, Sylhet, Bangladesh, 1984

Remarks: *Infestation occurs most commonly in the intestine. Besides 1984 (Ahmed et al.), the infestation also occurred in 1981 (Ahmed) in Barisal and Dhaka, 1983, 1985 (Rashid et al.; Ahmed et al.), 1984 (Rashid and Haque) in the locality of Dhaka and earlier in 1977 (Ahmed and Sanaullah) in Dhaka and Rajshani. There are reports of the infestation in 1976, 1977 (Ahmed and Sanaullah), 1978 (Sanaullah and Ahmed), 1979 (Ahmed and Sanaullah) and 1997 (Ahmed and Ezaz) with no specific locality cited.*

Parasitic infestations (protozoa, worms, etc.): Procamallanus infestation 1 Ref. : 026129
Causative agent : *Procamallanus clarius*

Remarks: *Infestation commonly occurs in the stomach and intestine. Besides 1968 (Rahman and Ali), the infestation also occurred in 1974 (Anon.) in Chittagong, 1983 (Rashid et al.) in Dhaka, 1984 (Rashid and Haque) in Dhaka, 1990 (Rashid) also in the locality of Dhaka, and in 1968 (Ali) and 1997 (Ahmed and Ezaz) with no specific locality mentioned.*

Parasitic infestations (protozoa, worms, etc.): Orientocreadium infestation Ref.: 026129
Causative agent : *Orientocreadium batrachoides*
Occurrence : Dhaka, Bangladesh, 1983

Remarks: *Infestation commonly occurs in the intestine. Besides 1983 (Rashid et al.), the infestation also occurred in 1984 (Rashid et al.; Rashid and Haque) in the locality of Dhaka and 1997 (Ahmed and Ezaz) in which the specific locality is not mentioned.*

Parasitic infestations (protozoa, worms, etc.): Dactylogyrus gill flukes diseas Ref.: 000060
Helminthose (gills)
Causative agent : *Dactylogyrus sp.*
Occurrence : Dhaka, Bangladesh, 1993

Remarks: *Infestation occurs most commonly in the gills and skin.*

Parasitic infestations (protozoa, worms, etc.): Trichodinosis Ref.: 000193
Trichodinella sp.; Trichodina infestation
Causative agent : *Trichodina sp.*
Occurrence : Dhaka, Bangladesh, 1993

Remarks: *Infestation commonly occurs in the gills and skin.*

Parasitic infestations (protozoa, worms, etc.): Clinostomum infestation Ref.: 005435
(metacercaria)
Causative agent : *Clinostomum sp.*
Occurrence : Dhaka, Bangladesh, 1993

Remarks: *Infestation commonly occurs in the body cavity and muscle.*

Parasitic infestations (protozoa, worms, etc.): Gnathostoma infestation Ref.: 026129
Causative agent : *Gnathostoma spinigerum*
Occurrence : Dhaka, Bangladesh, 1972

Remarks: *Infestation commonly occurs in the viscera, stomach, intestine, body cavity and muscles. Besides 1972 (Bashirullah), the infestation also occurred in 1977 (Ahmed and Sanaullah) in the localities of Chittagong, Dhaka and Sylhet, 1978 (Sanaullah) in Chittagong and Dhaka, and in 1976 (Ahmed and Sanaullah) and 1997 (Ahmed and Ezaz) with no specific locality mentioned.*

Parasitic infestations (protozoa, worms, etc.): Sporozoa infection (*Myxobolus sp*.) Ref.: 041805
Causative agent : *Myxobolus sp.*
Occurrence : Dhaka, Bangladesh, 1993

Remarks: *Infestation commonly occurs in the gills and skin.*

Parasitic infestations (protozoa, worms, etc.): Procamallanus disease Ref.: 026129
Causative agent : *Procamallanus sp.*
Occurrence : Dhaka, Bangladesh, 1993

Remarks: *Infestation commonly occurs in the body cavity and intestine.*

Parasitic infestations (protozoa, worms, etc.): Procamallanus disease 2 Ref.: 042533
Spirocamallanus sp.
Causative agent : *Procamallanus sp.*
Occurrence : Dhaka, Bangladesh, 1983

Remarks: *Infestation commonly occurs in the stomach and intestine. Besides 1983 (Rashid et al.) the infestation was also recorded in 1984 (Rashid and Haque) and 1990 (Rashid)*

Parasitic infestations (protozoa, worms, etc.): Capingentoides infestation Ref.: 042533
Causative agent : *Capingentoides batrachii*
Occurrence : Dhaka, Bangladesh, 1981

Remarks: *Common infestation. The infestation was recorded in 1984 (Ahmed et al.) in the localities of Dhaka, Chittagong and Sylhet, 1985 (Ahmed et al.) in Dhaka, and 1997 (Ahmed and Ezaz) without a specific locality mentioned. This parasite species was listed as a species inquirenda.*

Parasitic infestations (protozoa, worms, etc.): Monobothrioides disease Ref.: 042533
Causative agent : *Monobothrioides sp*.
Occurrence : Dhaka, Bangladesh, 1983

Remarks: *Infestation commonly occurs in the intestine. Besides 1983 (Rashid et al.), the infestation was also recorded in 1985 (Rashid et al.) and 1984 (Rashid and Haque) in the locality of Dhaka.*

Parasitic infestations (protozoa, worms, etc.): Ascaridia disease Ref.: 042533
Causative agent : *Ascaridia sp.*
Occurrence : Dhaka, Bangladesh, 1983

Remarks: *Infestation commonly occursin the viscera, digestive tract and body cavity. Besides 1983 (Rashid et al.), the infestation was also recorded in 1984 (Rashid and Haque) and 1990 (Rashid) in the locality of Dhaka.*

Parasitic infestations (protozoa, worms, etc.): Acanthogyrus infestation Ref.: 005387
Causative agent : *Acanthogyrus sp.*
Occurrence : Dhaka and Rajshani, Bangladesh, 1977

Remarks: *Infestation commonly occurs in the intestine. Besides 1977 (Ahmed and Sanaullah), the infestation also occurred in 1978 (Sanaullah and Ahmed) in the locality of Rajshani and 1976 (Ahmed and Sanaullah) with no specific locality mentioned.*

Parasitic infestations (protozoa, worms, etc.): Procamallanus infestation 5 Ref.: 042533
Spirocamallanus mysti
Causative agent : *Procamallanus mysti*
Occurrence : Dhaka and Rajshani, Bangladesh, 1977

Remarks: Infestation commonly occurs in the stomach, intestine, and liver. Besides 1977 (Ahmed and Sanaullah), the infestation also occurred in 1978 (Sanaullah and Ahmed) in the localities of Dhaka and Rajshani, and 1976 (Ahmed and Sanaullah) with no specific locality mentioned.

Parasitic infestations (protozoa, worms, etc.): Djombangia infestation Ref.: 042533
Causative agent : *Djombangia penetrans*
Occurrence : Dhaka, Chittagong, Rajshani, and Sylhet, Bangladesh, 1977

Remarks: *Infestation occurs most commonly in the stomach and intestine. Besides 1977 (Ahmed and Sanaullah), the infestation also occurred in 1978 (Ahmed and Sanaullah) in the localities of Dhaka, Chittagong, Rajshani, and Sylhet, 1981 (Ahmed) in Dhaka and Barisal, 1983 (Rashid et al.), 1984 (Rashid and Haque) and 1985 (Rashid et al.; Ahmed et al.) in Dhaka, and 1984 (Ahmed et al.) in the localities of Barisal, Chittagong,*

Rajshani, and Sylhet. There are records in 1976 (Ahmed and Sanaullah) and 1997 (Ahmed and Ezaz) but did not indicate specific collection localities for individual host or parasite species.

Parasitic infestations (protozoa, worms, etc.): Gauhatian infestation Ref.: 026129
Causative agent : *Gauhatian batrachii*
Occurrence : Luzon, Philippines, 1988

Remarks: *Infestation commonly occurs in the stomach and intestine.*

Parasiticinfestations (protozoa, worms, etc.): Cristaria infestation Ref.: 026129
Causative agent : *Cristaria plicata*
Occurrence : Luzon, Philippines, 1986

Remarks: *Infestation commonly occurs in the gills and skin. Besides 1986 (Velasquez), there are also records from 1988 (Velasquez).*

Parasitic infestations (protozoa, worms, etc.): Procamallanus infestation 1 Ref.: 026129
Causative agent : *Procamallanus clarius*
Occurrence : Luzon, Philippines, 1986

Remarks: *Infestation commonly occurs in the stomach and intestine. This record occurred in 1986 and 1988 (Velasquez; Lopez). The disease also occurred in 1987 (Natividad).*

Parasitic infestations (protozoa, worms, etc.): Gnathostoma infestation Ref.: 026129
Causative agent : *Gnathostoma spinigerum*
Occurrence : Luzon, Philippines, 1938

Remarks: *Infestation commonly occurs in the musculature and visceral linings.*

Parasitic infestations (protozoa, worms, etc.): Boviena disease Ref.: 026129
Causative agent : *Boviena serialis*
Occurrence : Luzon, Philippines, 1978

Remarks: *Infestation commonly occurs in the intestine. Besides 1978 (Velasquez), the disease also occurred in 1986 and 1988 (Lopez).*

Parasitic infestations (protozoa, worms, etc.): Dactylogyrus gill flukes disease Ref.: 000060,
Helminthose (gills) 026129
Causative agent : *Dactylogyrus sp.*
Occurrence : Luzon, Philippines, 1981

Remarks: *Infestation commonly occurs.*

Parasitic infestations (protozoa, worms, etc.): Opegaster infestation Ref.: 026129
Causative agent : *Opegaster minima*
Occurrence : Luzon, Philippines, 1944

Remarks: *Infestation commonly occurs in the intestine. Besides 1944 (Tubanngui and Masiluñgan), the disease also occurred in 1986 and 1988 (Lopez).*

Parasitic infestations (protozoa, worms, etc.): Orientocreadium infestation Ref.: 026129
Causative agent : *Orientocreadium batrachoides*
Occurrence : Luzon, Philippines, 1931

Remarks: *Infestation occurs most commonly in the intestine. Besides 1931 (Tubangui), the disease also occurred in 1944 (Tubangui and Masiluñgan).*

Parasitic infestations (protozoa, worms, etc.): Neodiplostomum disease Ref.: 026129
Causative agent : *Neodiplostomum sp.*
Occurrence : Luzon, Philippines, 1939

Remarks: *Infestation commonly occurs in the scales and skin.*

Parasitic infestations (protozoa, worms, etc.): Clinostomoides infestation Ref.: 026129
Causative agent : *Clinostomoides brieni*
Occurrence : Luzon, Philippines, 1960

Remarks: *Infestation occurs most commonly in the gill cavity, gills, gall bladder, periocular tissues, branchiostegal musculature and the pericardium. Besides 1960 (Velasquez) the disease also occurred in 1988 (Velasquez).*

Parasitic infestations (protozoa, worms, etc.): Haplorchis infestation 1 Ref.: 026129
Causative agent : *Haplorchis yokogawai*
Occurrence : Luzon, Philippines, 1937

Remarks: *Infestation occurs most commonly in the musculature. Besides 1937 (Africa), the disease also occurred in 1938 (Africa), 1937 (Africa et al.), 1938, 1939, 1940 (Vazquez-Colet and Africa).*

Parasitic infestations (protozoa, worms, etc.): Sporozoa infection (*Myxobolus sp*.) Ref.: 026129, 041805
Causative agent : *Myxobolus sp.*
Occurrence : Luzon, Philippines, 1975

Remarks: *Infestation commonly occurs in the gills, mesenteries and skin.*

Parasitic infestations (protozoa, worms, etc.): Sporozoa infection (*Hennegya sp*.) Ref.: 026129, 041805
Henneguya Infection
Causative agent : *Hennegya sp.*
Occurrence : Luzon, Philippines, 1975

Remarks: *Infestation commonly occurs in the fins.*

Parasitic infestations (protozoa, worms, etc.): Philometra disease Ref.: 026129, 000194
Causative agent : *Philometra sp.*

Remarks: *Infestation occurs most commonly in the musculature and palate. Besides 1986 (Lopez), the disease also occurred in 1988 (Lopez).*

Parasitic infestations (protozoa, worms, etc.): Skin flukes Ref.: 026129, 000060
Helminthose (skin and eventually gills afflicted)
Causative agent : *Gyrodactilus sp.*
Occurrence : Luzon, Philippines, 1975

Remarks: *Infestation commonly occurs in the gills and skin.*

Parasitic infestations (protozoa, worms, etc.): Phyllodistomum infestation Ref.: 026129
Causative agent : *Phyllodistomum sp.*
Occurrence : Luzon, Philippines, 1986

Remarks: *Common infestation. The disease occurred in 1988 (Lopez).*

Bacterial diseases: Bacterial infections (general) Ref.: 041805
Causative agent : N.A.
Occurrence : not specified

Parasitic infestations (protozoa, worms, etc.): Anchor worm disease Ref.: 042533, 000060
Lernaeosis
Causative agent : *Lernaea cyprinacea*
Occurrence : not specified, Bangladesh, 1990

Remarks: *Infestation commonly occurs in the skin, above gill clefts, under accessory respiratory organs, abdominal muscles and liver.*

Parasitic infestations (protozoa, worms, etc.): Lytocestus disease (*Lytocestus sp*.) Ref.: 042533
Causative agent : *Lytocestus sp.*
Occurrence : not specified, Bangladesh, 1968

Remarks: *Infestation commonly occurs in the intestine. Besides 1968 (Ali), the infestation was also recorded in 1974 (Anon.) but no specific locality was sited.*

Parasitic infestations (protozoa, worms, etc.): Dactylogyrus infestation 1 Ref.: 042533
Causative agent : *Dactylogyrus vastator*
Occurrence : not specified, Bangladesh, 1999

Remarks: *Infestation occurs most commonly in the gills.*

Parasitic infestations (protozoa, worms, etc.): Posthodiplostomum infestation 2 Ref.: 042533
Causative agent : *Posthodiplostomum minimum*
Occurrence : not specified, Bangladesh, 1997

Remarks: *Infestation commonly occurs in the muscles and viscera.*

Parasitic infestations (protozoa, worms, etc.): Phyllodistomum infestation 3 Ref.: 042533
Causative agent : *Phyllodistomum folium*
Occurrence : not specified, Bangladesh, 1997

Remarks: *Infestation commonly occurs in the intestine, urinary bladder, body cavity, and mesenteries.*

Parasitic infestations (protozoa, worms, etc.): Masenia infestation Ref.: 042533
Causative agent : *Masenia dayali*
Occurrence : not specified, Bangladesh, 1997

Remarks: *Infestation commonly occurs in the intestine.*

Parasitic infestations (protozoa, worms, etc.): Procamallanus infestation 6 Ref.: 042533
Procamallanus spiculogubernaculus
Causative agent : *Procamallanus spiculogubernaculus*
Occurrence : not specified, Bangladesh, 1997

Remarks: *Infestation commonly occurs in the stomach and intestine.*

Fungal diseases: Fungal infection (general) Ref.: 048502
Secondary Fungal infection
Causative agent : N.A.
Occurrence : not specified

Parasitic infestations (protozoa, worms, etc.): Hemiclepsis infestation Ref.: 042533
Causative agent : *Hemiclepsis marginata*
Occurrence : not specified, Bangladesh, 1974

Remarks: *Infestation commonly occurs in the skin.*

Parasitic infestations (protozoa, worms, etc.): Yellow grub Ref.: 042533, 000195
Causative agent : *Clinostomum complanatum*
Occurrence : not specified, Bangladesh, 1997

Remarks: *Infestation commonly occurs in the skin, fins, gills, and muscles.*

Parasitic infestations (protozoa, worms, etc.): Gyrocotyle disease Ref.: 042533
Causative agent : *Gyrocotyle sp.*
Occurrence : not specified, Bangladesh, 1968

Remarks: *Infestation occurs most commonly in the intestine. Besides 1968 (Ali), the infestation was also reported to have occurred in 1974 (Anon.) but also did not indicate specific collection localities.*

Parasitic infestations (protozoa, worms, etc.): Echinocephalus disease Ref.: 042533
Causative agent : *Echinocephalus sp.*
Occurrence : not specified, Bangladesh, 1968

Remarks: *Infestation commonly occurs in the intestine. Besides 1968 (Ali), the infestation was also recorded in 1974 (Anon.) with no specific locality mentioned.*

Parasitic infestations (protozoa, worms, etc.): Enteric Septicaemia of catfish Ref.: 048850
Causative agent : *Edwardsiella ictaluri*
Occurrence : not specified, 1987

O eggs	O fry	O females	☑ in the wild
O larvae	O juveniles	O males	☑ in culture

Remarks: *The infection was recorded by Kasornchandra et al. (1987).*

Bacterial diseases : Aeromonosis Ref.: 048848, 000060
Infectious Ascites; Haemorrhagic Septicaemia; Red Fin disease
Causative agent : *Aeromonas hydrophila*
Occurrence : not specified, 1971

O eggs	O fry	O females	☑ in the wild
O larvae	O juveniles	O males	☑ in culture

Remarks: *The infecion were recorded in 1971 (Bullock et al.), 1978 (Egusa) and later in 1986 (Saitanu).*

Parasitic infestations (protozoa, worms, etc.): Pallisentis infestation Ref.: 042533
Causative agent : *Pallisentis gaboes*
Occurrence : not specified, Bangladesh, 1997

Remarks: *Infestation commonly occurs in the body cavity, mesenteries and intestine.*

Parasitic infestations (protozoa, worms, etc.): Lytocestus infestation 2 Ref.: 042533
Causative agent : *Lytocestus lativitellarium*
Occurrence : not specified, Bangladesh, 1997

Remarks: *Infestation occurs most commonly in the intestine.*

Parasitic infestations : (protozoa, worms, etc.): Acanthogyrus infestation Ref: 042533, 005435
Causative agent : *Acanthogyrus tilapiae*
Occurrence : not specified, Bangladesh, 1997

Remarks: *Infestation commonly occurs in the intestine.*

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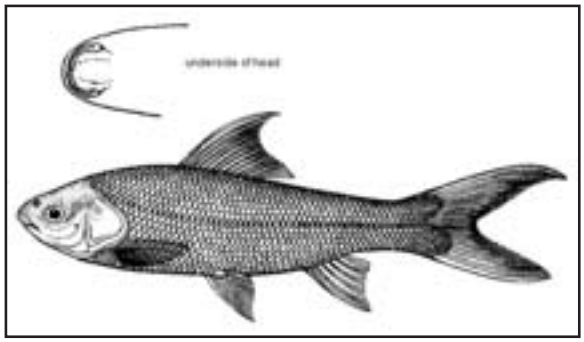
CIRRHINUS MICROLEPIS

(Sauvage, 1878)

Small scale mud carp

ត្រីព្រួស



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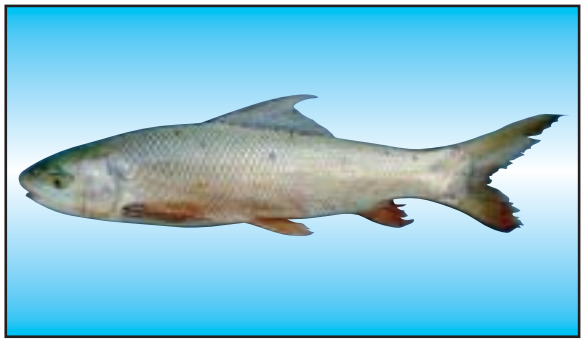

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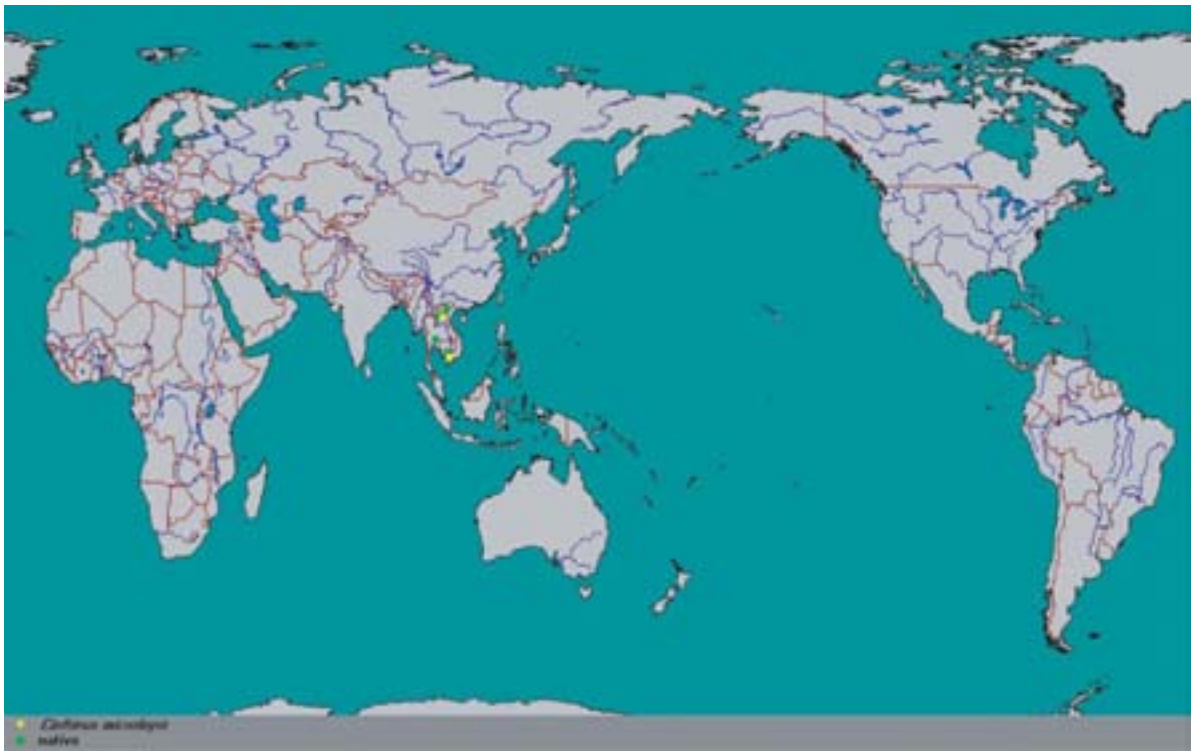

3.1. Summary information on the family Cyprinidae

Family	: Cyprinidae (Minnows or carps)	MainRef.: 007463
Order	: Cypriniformes	FamCode: 122
Class	: Actinopterygii (Ray-finned fishes)	
Number of genera	: 210	
Number of species	: 2010	
Occurs in	: O Marine	
	⊘ Brackish	
	⊘ Freshwater	
Aquarium fishes	: many	

Species currently in FishBase: Genera: 331 Species: 2408 (Including subspecies) Complete: Yes

Remarks:

Distribution: North America (Northern Canada to Southern Mexico), Africa, and Eurasia. Pharynx with 1-3 rows of teeth, each row with a maximum of 8 teeth. Usually thin lips, plicae or papillae absent; mouth sometimes suckerlike (Garra and Labeo). With or without barbels. Premaxilla usually borders the upper jaw making the maxilla entirely or almost entirely excluded from the gape. Usually protrusible upper jaw. Dorsal fin with spinelike rays in some. Primitive number of chromosomes 2n=50, some with 48; polyploidy exists. Maximum length at least 2.5 m to probably 3 m in Catlocarpio siamensis; many species less than 5 cm. mainly non-guarders, but in some species males build nests and/or protect the eggs. Etymology: Greek, kyprinos = goldfish. 1828 (Ref. 45335).

3.2. Information on the genus *Cirrhinus* and its synonyms

After Eschmeyer, March 2003 (Ref. 46206)

Cirrhinichthys Status: synonym Gender: masculine
Bleeker, 1863, p. 202, CAS Ref: 397
Type by original designation (also monotypic).
Type species : *Cirrhina dussumieri* Valenciennes, 1842
Current genus : *Cirrhinus*

Cirrhinus Status: valid Gender: masculine
Oken (ex Cuvier), 1817, p. 1183, CAS Ref: 3303
Type by monotypy.
Type species : *Cyprinus cirrhosus* Bloch, 1795
Current genus : *Cirrhinus*

Henicorhynchus Status: synonym Gender: masculine
Smith, 1945, p. 256, CAS Ref: 4056
Type by original designation (also monotypic).
Type species : *Henicorhynchus lobatus* Smith, 1945
Current genus : *Cirrhinus*

Isocephalus Status: synonym Gender: masculine
Heckel, 1843, p. 1029, CAS Ref: 2067
Type by subsequent designation.
Type species : *Cyprinus cirrhosus* Bloch, 1795
Current genus : *Cirrhinus*

Mrigala Status: synonym Gender: feminine
Bleeker, 1860, p. 427, CAS Ref: 370
Type by subsequent monotypy.
Type species : *Cirrhina bengalensis* Bleeker, 1853
Current genus : *Cirrhinus*

3.3. General information on *Cirrhinus microlepis*

Classification

Class	: Actinopterygii (Ray-finned fishes)	MainRef. 033488
Order	: Cypriniformes	
Family	: Cyprinidae (Minnows or carps)	
Species	: *Cirrhinus microlepis*	
Author	: Sauvage, 1878	

Environment

Freshwater	: Yes	Habitat	: Benthopelagic
Brackish	: No		
Saltwater	: No		

Importance

Importance to fisheries	: Commercial					Ref. 012693
Main catching method	:					
Other methods	:	☑ Seines	☑ Gillnets	O Castnets	☑ Traps	O Spears
		O Trawls	O Dredges	O Liftnets	☑ Hooks+Lines	O Other
Used for aquaculture	: Never/rarely					
Used as bait	: Never/rarely					
Aquarium fish	: Never/rarely					
Game fish	: No					
Dangerous fish	: Harmless					
Electrobiology	: No special ability					
Maximum length (cm) (male/unsexed)	:	65 SL				Ref. 030857
Maximum weight (g) (male/unsexed)	:	5,000.00				Ref. 010431

Remarks:

Inhabits large rivers and lowland floodplains (Ref. 12693). Occurs in riffle and deep slow reaches (Ref. 37769). Moves out into the flooded forest where it feeds on leafy plant matter, phytoplankton and insects (Ref. 12693). Migration pattern is markedly different above and below the Khone Falls in the Mekong Basin. Below the falls, it makes an upstream migration from Phnom Penh to the Khone Falls between November and February, consisting mainly of sub-adults of sizes 10 to 50 cm. From April to July, it migrates in the opposite direction, from Khone Falls and downstream, consisting mainly of sub-adults up to about 50 cm (Ref. 37770). Above the Khone Falls, from Klong Kaem District, Ubolratchatani in Thailand, it migrates upstream in February; at Khemmaratch further upstream in Ubolratchatani, it moves upstream in March-April; and at Mukdahan, it goes upstream in May. However, it migrates downstream at Klong Kaem in June-July (Ref. 37770). Only downstream migrations are reported in the Mekong Delta in Viet Nam, consisting mainly of juveniles (2-20 cm), with the smallest fish mainly in June-July and fish between 10 and 20cm mainly from September to November (Ref. 37770). From Xayabouri in Laos to Chiang Saen in Thailand, upstream migrations take place from March to August. This appears to be two distinct migrations: one of sub-adults measuring 15-50 cm during March-April and another one of larger fishes of sizes 40 to 90 cm during June-July (Ref. 37770). Not known to persist in impoundments. Individuals caught with dais or

traps are often immediately kept alive in fish cages for future sale. Marketed fresh and sometimes dried and salted (Ref. 12693). Known to reach up to 15 kg in Thailand (Jean-Francois, pers. comm. 11/02).

3.4. Synonyms, misidentifications, etc. used for *Cirrhinus microlepis*

Name	Author	Status	Ref.
Cirrhina aurata	Sauvage, 1878	junior synonym	033488
Cirrhinus auratus	Sauvage, 1878	junior synonym	012693
Labeo aurovittatus	Sauvage, 1878	junior synonym	033488
Cirrhinus microlepis	Sauvage, 1878	original combination	033488
Cirrhina microlepis	Sauvage, 1878	original combination	033488
Cirhinus microlepis	Sauvage, 1878	misspelling	040966
Labeo pruol	Tirant, 1885	junior synonym	033488

3.5. Common names for *Cirrhinus microlepis*

Name	Language	Country	Ref.
Kralang	Khmer	Cambodia	036651
Pruol	Khmer	Cambodia	036651
Trey kanlang	Khmer	Cambodia	036654
Trey krawlang	Khmer	Cambodia	012693
Trey pruol	Khmer	Cambodia	012693
Pa pawn	Laotian	Lao People's Dem. Rep.	009497
Pa phone	Laotian	Lao People's Dem. Rep.	004792
Pawn	Laotian	Lao People's Dem. Rep.	040382
Pba pawn	Laotian	Lao People's Dem. Rep.	037769
Small scale mud carp	English	Thailand	041767

3.6. Distribution of *Cirrhinus microlepis*

Asia: Chao Phraya and Mekong Basins in Thailand, Laos, Cambodia and Viet Nam. MainRef.: 27732
Latitudinal range: 19° N-9° N Temperature range: - °C Ref.:
Status of threat: NL.

Country **Status** **Ref.**

Cambodia **native** **012693**

Found in the Mekong River. Known from below the Khone Falls to the Tonle Sap River and the Great Lake (Ref. 37772). Occurs in large numbers in the Tonle Sap in December, with catch steadily declining as the fishing season progresses (Ref. 12693). It is an important species in the dai fisheries in the Tonle Sap River when it migrates downstream the Tonle Sap and into the Mekong during December to February (Ref. 37770). Also Ref. 10431, 27732, 36654, 33813, 43281, 45353.

Lao People's Dem. Rep. **native** **043281**

Occurs in the Mekong Basin. A migratory species known from above Pak Beng to the Khone Falls (Ref. 37772). Found in the Lower Xe Bangfai (Ref. 27732) and Ban Hang Khone at Don Khone, 3 km below the fall line of the great waterfalls of the Mekong Basin at Lee Pee (Ref. 9497). Inhabits riffle, deep slow reaches of the Mekong Basin at Muang Khong (Ref. 37769). Undertakes non-reproductive upstream migration in December-March and downstream migration in June-July at Hat Village, Muang Khong District (Ref. 37769). Observed also to undergo

migration at the fishing village of Ban Wernsonkhram on Don Hat (Hat Island) above the Lee Pee Waterfalls (Ref. 10431). Also migrates downstream during the wet season in July-August through Hoo Som Yai at the Great Fault Line on the Mekong River, Champassack Province (Ref. 37771). Moves into flooded forest on Don Khone and Don Saddam to forage (Ref. 37772). From Xayabouri in Laos to Chiang Saen in Thailand, it undertakes upstream migrations from March to August. One of the most important fishes at the Khone Falls during the dry season from January to March, when it migrates upstream. Has been artificially induced to spawn in Pakse in Champassak Province (Ref. 37770). Also Ref. 4792, 10431, 30857, 36654, 37767.

Thailand **native** **033488**

Found in the Chao Phraya and Mekong Basins (Ref. 26336, 33488). From Xayabouri in Laos to Chiang Saen in Thailand, it undertakes upstream migrations from March to August. From Klong Kaem District, Ubolratchatani, this species migrates upstream in February; at Khemmaratch further upstream in Ubolratchatani, it moves upstream in March-April; at Mukdahan, it goes upstream in May. However, it migrates downstream at Klong Kaem in June-July (Ref. 37770). Fish caught in dams are known to reach up to 15 kg in (Jean-Francois, pers. comm. 11/02). Also Ref. 12041, 26336, 27732, 37772, 43281.

Viet Nam **native** **036625**

Known from the Mekong Basin (Ref. 33488). Undertakes downstream migration in the Mekong Delta, consisting mainly juveniles of sizes between 2 and 20 cm, with the smallest fish mainly in June-July, while sizes from 10-20 cm in September to November (Ref. 37770). Also Ref. 27732.

3.7. Summary information (no. of records) available for *Cirrhinus microlepis*

Asia: Chao Phraya and Mekong Basins in Thailand, Laos, Cambodia and Viet Nam.

Ecology	1	Max. sizes	0	Strains	0
Food items	4	FAO catches	15502	Diseases	0
Food consumption	0	Genetics	0	Ciguatera	0
Diet composition	0	Allele frequency	0	Ecotoxicology	0
Ration	0	Heritability	0	Metabolism	0
Predators	0	Reproduction	1	Gill area	0
Morphology	1	Spawning	3	Swimming type	0
Processing	0	Eggs	0	Swimming speed	0
Growth/mortality	0	Egg dev't.	0	Vision	0
Maturity	0	Larvae	0	Brains	0
Recruitment	0	Larval dynamics	0	Introductions	0
L/W relat.	1	Aquaculture	0	Occurrence	

3.8. Morphology of *Cirrhinus microlepis*

Diagnostic Characters

Distinguished from other species of the genus in the area by its count of lateral line scales: 53-60 (Ref. 27732). A large species with very small scales, no barbels, and distinctive coloration. Juveniles silvery with red caudal fin, larger fish with head and body violaceous, rosy, or bluish and caudal fin dusky (Ref. 33488)

Descriptive Characters

Operculum present : no

Meristic Characters
Lateral Lines
Interrupted : no
Scales on lateral line 53-60
Scales in lateral series 56-60
Gill rakers on lower limb total : 102 - 102
on upper limb -
Vertebrae: preanal: 27 - 27 total: 4040

Dorsal fins
Number of fins : 1 spines total: 0 soft-rays total: 15-16
Caudal fin
Shape of fin : forked
Attributes : more or less normal
Paired fins
Pectoral attributes : more or less normal
spines : soft-rays:
Pelvics attributes : more or less normal
position : abdominal behind origin of D1
Body proportions (based on picture)

3.9. General Information on the reproduction of *Cirrhinus microlepis*

Level : species in general **StockCode: 021234**
Mode and Type of Reproduction
Mode : dioecism
Fertilization : external
Spawning frequency
Batch spawner : no reproductive guild : non guarders
Open water/substratum egg scatterers

Reproductive behavior assumed only. Replace ASAP (RF).

Spawning Information for *Cirrhinus microlepis*

Locality : Laos, Xayabouri, Mekong Basin **Stockcode: 021234**
Season (% of mature females; 111 = presence of mature females): Main Ref.: 037770

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
						111	111				

Comment: Based on mature fishes bearing eggs.

Locality : Laos, Mekong basin at Kinnak market close to Muang Khong **Stockcode 021234**
Season (% of mature females; 111 = presence of mature females): Main Ref.: 037769

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
					111	111					

Comment: Samples were purchased from the Kinnak market close to Muang Khong District (Ref. 37769). Large fish in spawning condition migrate downstream in February and again late in the rainy season, July (Ref. 9497).

Locality : Thailand, Chiang Saen, Mekong Basin **Stockcode: 021234**
Season (% of mature females; 111 = presence of mature females): Main Ref.:037770

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
						111	111				

Comment: Based on mature fishes bearing eggs.

3.10. Ecology of *Cirrhinus microlepis*

Level : species in general **StockCode : 027149** **Main Ref.: 012693**

Habitats **Ref.: 012693**
Streams : Yes Lakes : Yes Caves: No (Exclusively: No)

Estuaries/lagoons/brackish seas : No

Intertidal: No	Soft: No	Rocky: No	Mangroves/marshes/swamps : No
Marine: No	Oceanic: No	Neritic : No	Coral reef: No
Tropical soft bottom: No	Hard bottom: No	Seagrass beds : No	Macrophyte : No

Feeding
Feeding Type : mainly plants/detritus (troph. 2-2.19) Ref.: 12693

From indiv. food items : 2.4 0.21

3.11. Food items for *Cirrhinus microlepis*

Level: species in general **StockCode: 021234**

Food item				**Ref.**
plants				
other plants	benthic algae/weeds	Chlorophyta	unidentified aquatic chlorophytes	037769
	terrestrial plants	unidentified	unidentified	012693
phytoplankton	n.a./other phytoplankton	unidentified	unidentified	012693
zoobenthos				
insects	insects	unidentified	unidentified	012693

Total: 4

3.12. Length-Weight relationships of *Cirrhinus microlepis*

(W = a * L^b with Length in cm and Weight in g)

Locality : Laos, Mekong Mainstream **StockCode: 021234**
Length range : 20.7 - 37 81 Sample size :181 Main Ref.: 037769
a : 0.0137 Correlation coefficient : 0.9582
b : 2.861 Sex: unsexed

Comment : Pooled data from 1994 to 1996 from Hat Village, Muang Khong District and from Hee Village

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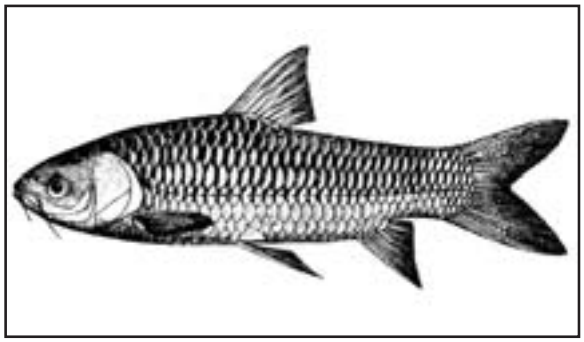
LEPTOBARBUS HOEVENII

(Bleeker, 1891)

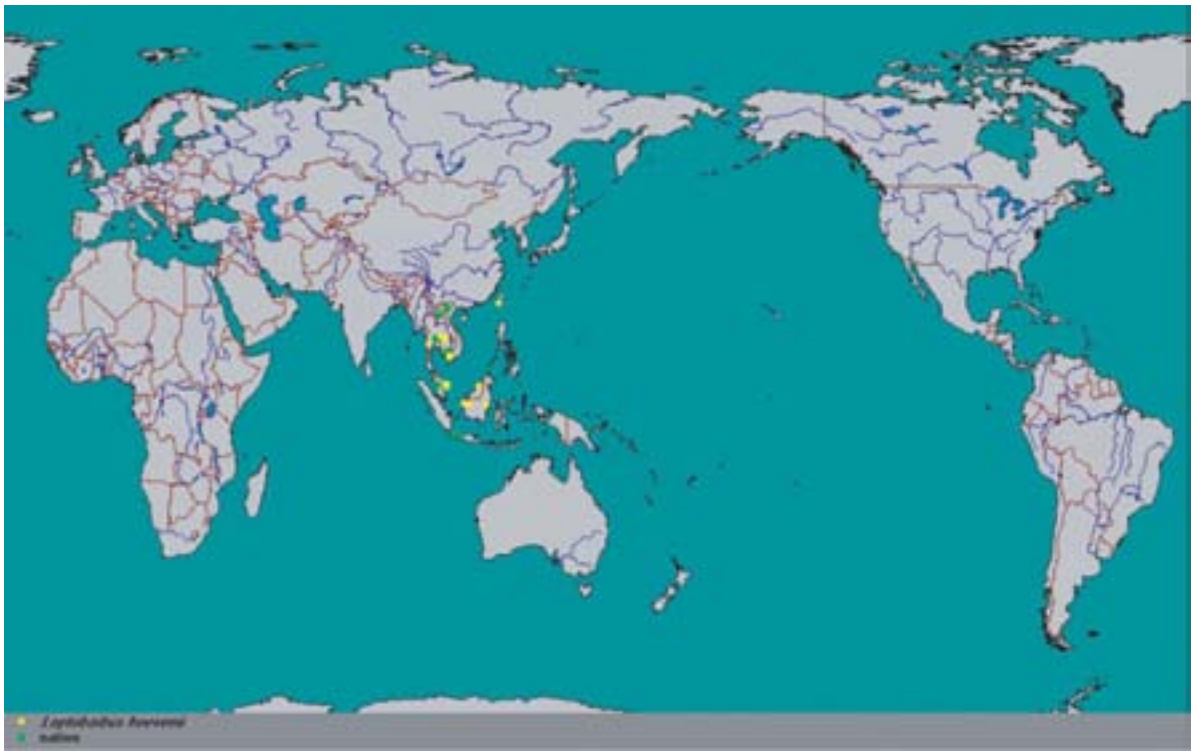
Mad barb

ត្រីព្រលុច



Picture by **FAO**

Picture by **Baird, I.G**



4.1. Summary information on the family Cyprinidae

Family : Cyprinidae (Minnows or carps) MainRef.: 007463
Order : Cypriniformes FamCode: 122
Class : Actinopterygii (Ray-finned fishes)

Number of genera : 210
Number of species : 2010
Occurs in : O Marine
☑ Brackish
☑ Freshwater
Aquarium fishes : many

Species currently in FishBase: Genera: 331 Species: 2408 (Including subspecies) Complete: Yes

Remarks:

Distribution: North America (Northern Canada to Southern Mexico), Africa, and Eurasia. Pharynx with 1-3 rows of teeth, each row with a maximum of 8 teeth. Usually thin lips, plicae or papillae absent; mouth sometimes suckerlike (Garra and Labeo). With or without barbels. Premaxilla usually borders the upper jaw making the maxilla entirely or almost entirely excluded from the gape. Usually protrusible upper jaw. Dorsal fin with spinelike rays in some. Primitive number of chromosomes 2n=50, some with 48; polyploidy exists. Maximum length at least 2.5 m to probably 3 m in Catlocarpio siamensis; many species less than 5 cm. Mainly non-guarders, but in some species males build nests and/or protect the eggs.
Etymology: Greek, kyprinos = goldfish. (Ref. 45335).

4.2. Information on the genus *Leptobarbus* and its synonyms

After Eschmeyer, March 2003 (Ref. 46206)

Filirasbora Status: synonym Gender: feminine
Fowler, 1937, p. 172, CAS Ref: 1425
Type by original designation (also monotypic).
Type species : *Filirasbora rubripinna* Fowler, 1937
Current genus : *Leptobarbus*

Leptobarbus Status: valid Gender : masculine
Bleeker, 1860, p. 435, CAS Ref: 370
Type by subsequent monotypy.
Type species : *Barbus hoevenii* Bleeker, 1851
Current genus : *Leptobarbus*

4.3. General information on *Leptobarbus hoevenii*

Classification
Class : Actinopterygii (Ray-finned fishes) MainRef. 002091
Order : Cypriniformes
Family : Cyprinidae (Minnows or carps)
Subfamily :
Species : *Leptobarbus hoevenii*
Author : (Bleeker, 1851).

Environment

Freshwater	: Yes	Habitat	: Benthopelagic
Brackish	: No	Migrations	: Potamodromous
Saltwater	: No	Depth range	: 3

Importance

Landing statistics	: From 1,000 to 10,000 tonnes				Ref. 004931
Importance to fisheries	: Commercial Food fish.				
Main catching method	:				
Other methods	: ☑ Seines	O Gillnets	☑ Castnets	☑ Traps	O Spears
	O Trawls	O Dredges	O Liftnet	☑ Hooks+Line	O Other

Used for aquaculture	: Commercial	Ref. 012108
Aquarium fish	: Commercial based mainly on breeding	Ref. 001672
Game fish	: No	
Dangerous fish	: Other	Ref. 043281
Electrobiology	: No special ability	

Maximum length (cm) (male/unsexed)	: 100 SL	(female):	Ref. 030857
Common length (cm) (male/unsexed)	: 50 SL	(female):	Ref. 012693
Maximum weight (g) (male/unsexed)	: 10,000.00	(female):	Ref. 009497

Remarks:

Found most often in freely flowing rivers and streams and seasonally on floodplains. Although reported to be non-migratory, it definitely does participate in local trophic migrations to and from inundated forests (Ref. 12693). Swims in shoals and is only fished in the Mekong especially during upstream (Jan.-Feb.) and downstream migration (Jun.-Jul.). Eats parenchyma and seeds of chaulmoogra tree (Hydnocarpus) falling into the streams; reported to become intoxicated and behaves in a peculiar manner and is believed to be toxic. Northern Laotians refrain from eating this fish but those in the South do. Cambodians and Vietnamese prize it highly (Ref. 2091). Eating flesh of the fish can cause nausea in humans (Ref. 12693).

4.4. Synonyms, misidentifications, etc. used for *Leptobarbus hoevenii*

Synonym	Author	Status	Ref.
Leptobarbus hoeveni	Bleeker, 1851	misspelling	002091
Leptobarbus hoevenii	Bleeker, 1851	new combination	002091
Barbus hoevenii	Bleeker, 1851	original combination	002091
Leptobarbus rubripinna	Fowler, 1937	junior synonym	012693
Filirasbora rubripinna	Fowler, 1937	junior synonym	002091
Leptobarbus rubripinnus	Fowler, 1937	junior synonym	002091

4.5. Common names for *Leptobarbus hoevenii*

Name	Language	Country	Ref.
Pralung	Khmer	Cambodia	040380
Pror loung	Khmer	Cambodia	036651
Trey chralang	Khmer	Cambodia	036654
Trey chrawlag	Khmer	Cambodia	012693
Trey knuoch	Khmer	Cambodia	036654
Trey prâloung	Khmer	Cambodia	002686

Trey pralung	Khmer	Cambodia	036654
Trey prolung	Khmer	Cambodia	036662
Trey prorlung	Khmer	Cambodia	012693
Jelawat	Malay	Indonesia	006107
Pa phong	Laotian	Lao People's Dem. Rep.	037767
Pa phong long	Laotian	Lao People's Dem. Rep.	002686
Pa pohng	Laotian	Lao People's Dem. Rep.	009497
River carp	English	Malaysia	004789
Jelawat	Malay	Malaysia	004789
Golden shark	English	Philippines	012157
Golden shark	English	Taiwan	040297
Pink tailed barb	English	Thailand	006459
Pla ai ba	Thai	Thailand	002686
Pla ai baa	Thai	Thailand	042982
Plaba	Thai	Thailand	002686
Pla baa	Thai	Thailand	042982
Pla hang deng	Thai	Thailand	002686
Hoven's carp	English	United Kingdom	003691
Mad barb	English	United Kingdom	012693
Mad barb	English	USA (contiguous states)	004537
Cá chài	Vietnamese	Viet Nam	002686

4.6. Distribution of *Leptobarbus hoevenii*

Asia: Thailand to Sumatra and Borneo. MainRef.: 002091
Latitudinal range: 23° N - 3° S Temperature range: 23 - 26 °C Ref.: 2060
Status of threat: NL.

Country **Status** **Ref.**

Cambodia **native** **012693**

A migratory species occurring in the Mekong Basin (Ref. 37772). Found around the Tonle Sap River and Great Lake (Ref. 36651), Mae Khong at Phum Rey Shsach (Ref. 36654). Also Ref. 3902, 36662, 33813, 43281.

Indonesia **native** **002091**

Known from Sumatra and Lake Tundai, South Borneo (Ref. 42107). Museum: Kapuas, CAS 49215 (Ref. 2091). Important food fish kept in cages or caught in open waters. Its flesh is expensive (Ref. 7050).

Lao People's Dem. Rep. **native** **043281**

Known from the Mekong River. A migratory species occurring at the Khone Falls (Ref. 37772). Found in Ban Hang Khone, a village on an island in the middle of the mainstream Mekong River just below the Great Khone Waterfalls in Khong District, Champasak Province (Ref. 37767). Inedible; eating this fish reportedly induces nausea & vomiting. The poison comes from Hydnocarpus fruits (mak gabao & mak ngooan) on which it feeds. Dorsal musculature eaten as lap (raw meat) marinated in vinegar & pepper (Ref. 9497). According to Ban Hang Khone fishermen, this species enters the flooded forest in July-September, feeds heavily on fallen fruit and attains a maximum weight of about 10 kg (Ref. 9497). Also Ref. 4792, 30857, 36654.

Malaysia **native** **004789**

Taiwan **introduced** **001739**

First successful larviculture in Taiwan occurred in 1984 (Ref. 40297).

Thailand **native** **026336**

Occurs in Maeklong, Chao Phraya, Mekong, Peninsular and Southeast Thailand river sytems (Ref. 26336). Main culture location is Bangkok (Ref. 6459). Also Ref. 1632, 2091, 7050, 9648, 26580, 36654, 43281.

Viet Nam **native** **036625**

Found in Mekong Delta (Ref. 36625). Also Ref. 2682, 36654, 43281.

4.7. Introductions of *Leptobarbus hoevenii*

Level: species in general
Asia: Thailand to Sumatra and Borneo.

Year	: 1979	Established: no	Ref. 001739
Introduced	: to Taiwan from Indonesia		
Reason	: research		
Comments	: Currently being cultured experimentally at Lukang branch of Taiwan Fisheries Research Institute.		

Year	: 1980 - 1989	Established: unknown	Ref. 012157
Introduced	: to Philippines from Unknown		
Reason	: ornamental		
Comments	: Introduced in the 1980's.		

Year	: unknown	Established: probably no	Ref. 038466
Introduced	: to Singapore from Unknown		
Reason	: aquaculture		

4.8. Summary information (no. of records) available for *Leptobarbus hoevenii*

Ecology	1	Max. sizes	0	Strains	0
Food items	5	FAO catches	15502	Diseases	0
Food consumption	0	Genetics	1	Ciguatera	0
Diet composition	0	Allele frequency	0	Ecotoxicology	0
Ration	0	Heritability	0	Metabolism	0
Predators	0	Reproduction	1	Gill area	0
Morphology	1	Spawning	0	Swimming type	0
Processing	0	Eggs	0	Swimming speed	0
Growth/mortality	0	Egg dev't.	0	Vision	0
Maturity	0	Larvae	0	Brains	0
Recruitment	0	Larval dynamics	0	Introductions	3
L/W relat.	0	Aquaculture	0	Occurrence	54

4.9. Morphology of *Leptobarbus hoevenii*

Descriptive Characters

Striking features	: none	
Body shape lateral	: elongated	Dorsal head profile: more or less straight
Operculum present	: yes	
Type of eyes	: more or less normal	
Position/type of mouth	: terminal	

Pigmentation on trunk and tail

Horizontal stripes	: present, lateral
Vertical stripes	: absent
Diagonal stripes	: absent
Curved stripes	: absent
Spots	: no spots
Dorsal fin (D1)	: no spots or stripes
Caudal fin	: no spots or stripes
Anal fin (A1)	: no spots or stripes

Meristic Characters

Lateral Lines		: 1	Interrupted: no
Scales on lateral line		: 32-38	
Scale rows above lateral line		: 4-4	
Barbels		: 0	
Gill clefts (sharks/rays only)			Spiracle :
Gill rakers	on lower limb		total : 16- 19
	on upper limb	-	
Vertebrae preanal total	:	-	

Dorsal fins

Dorsal attributes	: no striking attributes		
Number of fins	: -	spines total :	soft-rays total: 9-9
Adipose fin	: absent	finlets dorsal : 0-0	finlets ventral: 0-0

Caudal fin

Shape of fin	: forked
Attributes	: more or less normal

Anal fin

Number of fins	:	spines total :	soft-rays total: 8-8

Paired fins

Pectoral attributes	: more or less normal		
spines	:	soft-rays	:
Pelvics attributes	: more or less normal		
position	: abdominal behind origin of D1		

4.10. Genetic information for *Leptobarbus hoevenii*

Main Ref.: 034850

Locality : Southeast Asia		
Chromosome number (haploid)	: 25	Ref.:034850
Chromosome number (diploid)	: 50	Ref.:034850
Genetic marker(s) present	: No	
DNA content (picogram, haploid)		
Chromosome arm no.	: 94	Ref.:034850
Sex-determining mechanism	: chromosomes	

Remarks: *CF = 10m+ 34sm-st+ 6a.*

4.11. FAO aquaculture production data for *Leptobarbus hoevenii*

Country (Area)		**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**
		1991	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**
		1998	**1999**	**2000**	**2001**			
Cambodia (4)	(t)	40	80	80	80	120	150	170
	(US$'000)	80	160	132	154	300	375	425
	(t)	180	230	200	205	230	240	310
	(US$'000)	468	598	520	533	587	612	775
	(t)	340	390	380	410			
	(US$'000)	850	936	912	984			

Malaysia (4)	(t)	1	1,253	196	253	253	246	53
	(US$'000)	8	5,265	827	151	817	718	181
	(t)	256	481	477	499	539	406	377
	(US$'000)	1,054	1,458	2,231	1,507	1,519	1,228	1,031
	(t)	446	654	529	701			
	(US$'000)	879	1,148	965	1,253			
Singapore (4)	(t)	0	0	0	0	0	0	0
	(US$'000)	0	0	0	0	0	0	0
	(t)	0	0	0	0	0	0	0
	(US$'000)	0	0	0	0	0	0	0
	(t)	0	0	6	0			
	(US$'000)	0	0	70	0			
Total: 3	(mt)	41	1,333	256	105	335	396	226
	(US$'000)	88	5,425	959	305	1,117	1,093	606
	(mt)	436	711	677	704	769	646	687
	(US$'000)	1,522	2,056	2,751	2,040	2,106	1,840	1,806
	(mt)	786	1,044	915	1,111			
	(US$'000)	1,729	2,084	1,946	2,237			

4.12. General information on the reproduction of *Leptobarbus hoevenii*

Level : species in general, StockCode : 005026

Mode and Type of Reproduction

Mode : dioecism
Fertilization : external
Batch spawner : no
Reproductive guild : nonguarders Open water/substratum egg scatterers

4.13. Ecology of *Leptobarbus hoevenii*

Level : species in general StockCode : 005026, 004797 Main Ref.: 009497

Habitats

Streams: Yes	Lakes: Yes	Caves No	Estuaries/lagoons/brackish sea: No
Intertidal: No	Soft: No	Rocky: No	Mangroves/marshes/swamps : No
Marine: No	Oceanic: N	Neritic: No	Coral reefs : No Tropical soft bottom: No
Hard bottom : No	Seagrass beds: No		Macrophyte : No

Feeding

Feeding Type : mainly animals (troph. 2.8 and up)
Feeding Habit : hunting macrofauna (predator)

Trophic level(s) : Original sample		**Unfished population**		**Remarks**
Estimation method	Troph s.e.		Troph s.e.	
From diet composition	:	From indiv. food items :	2.9 0.32	

Additional remarks

Feeds on the seeds of terrestrial plants (Ref. 9497) and on insects and zooplankton (Ref. 33813). Adults consume more plant matter (Ref. 12693).

4.14. Food items for *Leptobarbus hoevenii*

Level: species in general **StockCode: 005026**

Food item				Ref.
plants				
other plants	terrestrial plants	fruit trees	*Hydnocarpus anthelminthica*	009497
		unidentified	*Quassia harmandina*	009497
zoobenthos				
insects	insects	unidentified	*unidentified terrestrial insects*	012693
worms	n.a./other annelids	Tubificidae	*unidentified tubificid worms*	012693
zooplankton				
other plank.	n.a./other plank.	unidentified	*unidentified*	012693
invertebrates	invertebrates			

4.15. FAO annual catch data (in tonnes) for *Leptobarbus hoevenii*

Country									
1950	**1951**	**1952**	**1953**	**1954**	**1955**	**1956**	**1957**	**1958**	**1959**
1960	**1961**	**1962**	**1963**	**1964**	**1965**	**1966**	**1967**	**1968**	**1969**
1970	**1971**	**1972**	**1973**	**1974**	**1975**	**1976**	**1977**	**1978**	**1979**
1980	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**
1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
2000	**2001**								
Indonesia				FAO Area : 4					
3,400	3,400	3,900	4,500	4,200	4,800	5,500	6,000	5,000	6,600
6,500	7,200	7,500	7,50	7,600	7,500	9,000	9,400	8,100	8,000
8,100	8,200	8,400	7,400	5,962	6,948	5,637	5,319	6,633	5,004
5,136	5,096	5,016	5,387	5,688	6,394	7,761	6,308	5,077	4,905
4,348	4,937	3,702	4,606	5,376	5,454	6,892	5,836	3,241	4,608
3,149	3,260								

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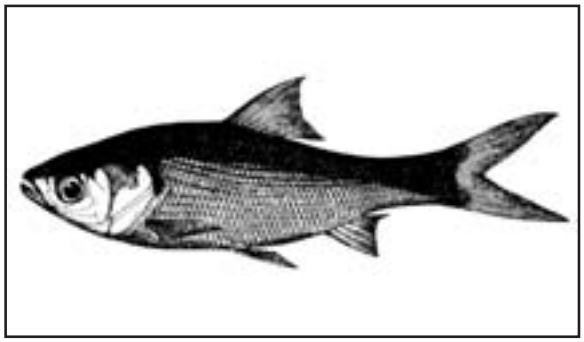
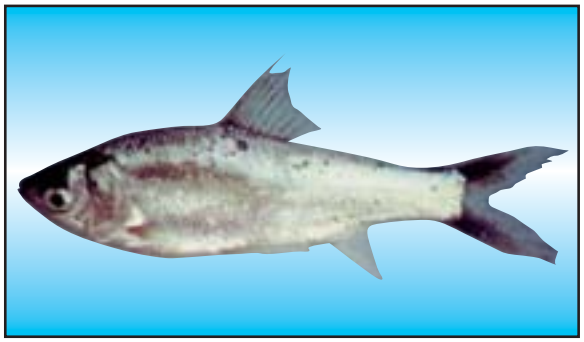
THYNNICHTHYS THYNNOIDES

(Bleeker, 1852)

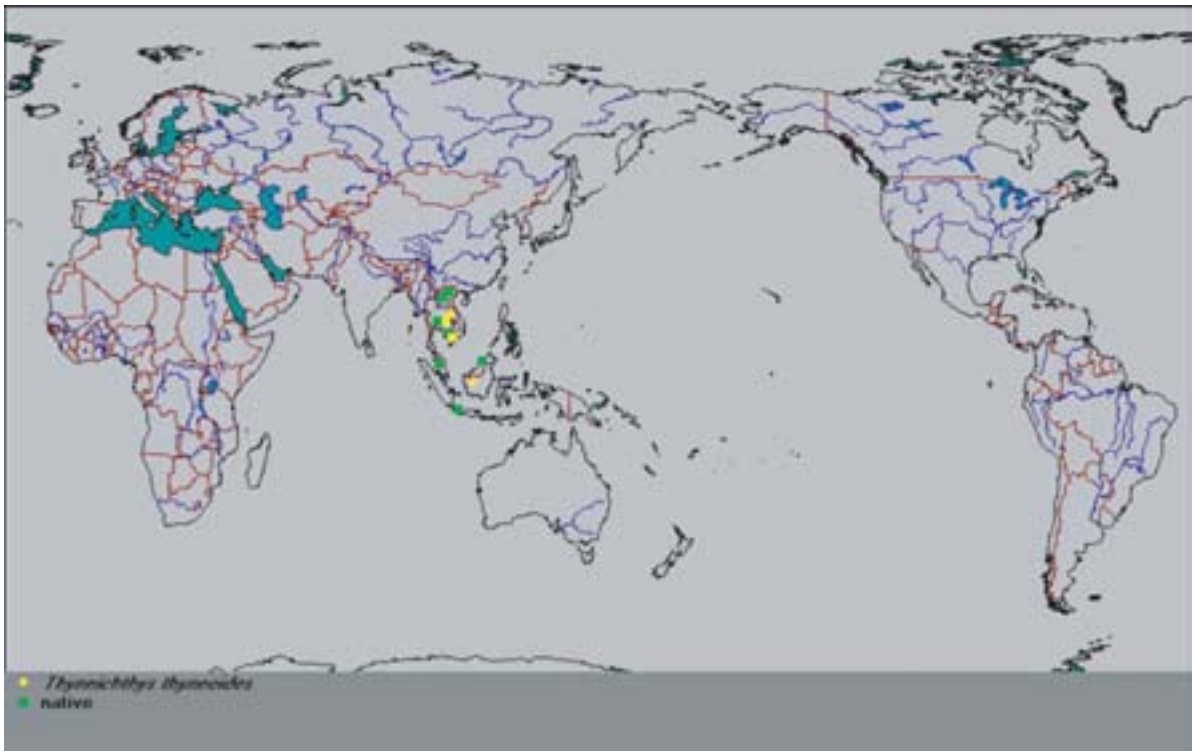
ត្រីលិញ



Picture by **FAO**



Picture by **Baird, I.G.**



5.1. Summary information on the family Cyprinidae

Family	: Cyprinidae (Minnows or carps)	
Order	: Cypriniformes	MainRef. : 007463
Class	: Actinopterygii (Ray-finned fishes)	FamCode: 122
Number of genera	: 210	
Number of species	: 2010	
Occurs in	: O Marine	
	☑ Brackish	
	☑ Freshwater	
Aquarium fishes	: many	
First fossil record	: Lower Tertiary Eocene	Ref.: 004879

Species currently in FishBase : Genera: 331 Species: 2408 (Including subspecies) Complete: Yes

Remarks:

Distribution: North America (Northern Canada to Southern Mexico), Africa, and Eurasia. Pharynx with 1-3 rows of teeth, each row with a maximum of 8 teeth. Usually thin lips, plicae or papillae absent; mouth sometimes suckerlike (Garra and Labeo). With or without barbels. Premaxilla usually borders the upper jaw making the maxilla entirely or almost entirely excluded from the gape. Usually protrusible upper jaw. Dorsal fin with spinelike rays in some. Primitive number of chromosomes 2n=50, some with 48; polyploidy exists. Maximum length at least 2.5 m to probably 3 m in Catlocarpio siamensis ; many species less than 5 cm. Mainly non-guarders, but in some species males build nests and/or protect the eggs. Etymology: Greek, kyprinos = goldfish. 1828 (Ref. 45335).

5.2. Information on the genus *Thynnichthys* and its synonyms

After Eschmeyer, March 2003 (Ref. 4626)

Thynnichthyina Status : synonym Gender : feminine
Fowler, 1937, p. 177, CAS Ref: 1425
Type by original designation (also monotypic).
Type species : *Thynnichthys thai* Fowler, 1937
Current genus : *Thynnichthys*

Thynnichthys Status : preoccupied Gender : masculine
Giglioli, 1880, p. 25, CAS Ref: 1617
Type by subsequent designation.
Type species : Thynnus thunina Cuvier, 1829
Current genus : Euthynnus

Thynnichthys Status : valid Gender : masculine
Bleeker, 1860, p. 433, CAS Ref: 370
Type by subsequent designation.
Type species : *Leuciscus thynnoides* Bleeker, 1852
Current genus : *Thynnichthys*

5.3. General information on *Thynnichthys thynnoides*

Classification

Class	: Actinopterygii (Ray-finned fishes)	MainRef. : 012693
Order	: Cypriniformes	

Family : Cyprinidae (Minnows or carps)
Species : Thynnichthys thynnoides
Author : (Bleeker, 1852)

Environment

Freshwater : Yes
Brackish : No
Saltwater : No
Habitat : Benthopelagic

Importance

Main catching method :
Other methods : ☑ Seines ☑ Gillnets ☑ Castnets ☑ Traps O Spears
O Trawls O Dredges O Liftnets O Hooks+Lines O Other
Used for aquaculture : Never/rarely
Used as bait : Never/rarely
Aquarium fish : Never/rarely
Game fish : No
Dangerous fish : Harmless
Electrobiology : No special ability

Size and age

Maximum length (cm) (male/unsexed) : 25 TL (female) : Ref. : 004792

Remarks: *Occurs in large rivers, canal, oxbows and floodplains. Microphagous, feeds mainly on phytoplankton and periphyton with lesser amounts of bottom algae and small zooplankton. Migrates for spawning to the floodplains when water level is high. Young of the year are caught as they begin to return to the rivers in October. In the Tonle Sap, adults make nearly all of the October catch, with larger and larger proportions of young in subsequent months. Used to make prahoc and nuoc mam (Ref. 12693).*

5.4. Synonyms, misidentifications, etc. used for *Thynnichthys thynnoides*

Synonym	Author	Status	Ref.
Thynnichthys thai	Fowler, 1937	junior synonym	033021
Thynnichthys thynnoides	Bleeker, 1852	new combination	010421
Thinnichthys thynnoides	Bleeker, 1852	misspelling	040966
Leuciscus thynnoides	Bleeker, 1852	original combination	002091

Total = 4

5.5. Common names for *Thynnichthys thynnoides*

Name	Language	Country	Ref.
Linh	Khmer	Cambodia	036651
Trey lenh	Khmer	Cambodia	036654
Trey linh	Khmer	Cambodia	012693
Pa goom	Laotian	Lao People's Dem. Rep.	009497
Pa keum	Laotian	Lao People's Dem. Rep.	004792
Pa koum	Laotian	Lao People's Dem. Rep.	037767

Pla i gun la mok	Thai	Thailand	042982
Pla kled tee	Thai	Thailand	009648
Pla kled thee	Thai	Thailand	042982
Pla ling	Thai	Thailand	042982
Pla nang jan	Thai	Thailand	
Pla nang jun	Thai	Thailand	042982
Pla nang kled	Thai	Thailand	009648
Pla naun jan	Thai	Thailand	
Pla naun jun	Thai	Thailand	042982
Pla prom	Thai	Thailand	042982
Cá linh cám	Vietnamese	Viet Nam	036625

5.6. Distribution of *Thynnichthys thynnoides*

Asia: Mekong and Chao Phraya Basins, Malay Peninsula, Sumatra, Borneo (Ref. 43281). Reported from the Maeklong river (Ref. 26336). MainRef.: 043281

Country **Status** **Ref.**

Brunei Darussalam **Native** **007050**

Cambodia **Native** **012693**

Known from the Mekong River (Ref. 12693, 26580). Found around the Tonle Sap River, Tonle Sap Lake (Ref. 36651), Prek Phnan (Ref. 36654), Sangke River, Battambang province (Ref. 41486). Also Ref. 7050, 36662, 33813, 45353.

Indonesia **native** **002091**

Known from Sumatra (Palembang, Djambi. Kampar R., Gunung Sahilan, Kwantan R. and Danau Sialong Lotong) and Borneo (Kapuas, Lake Tundai (Ref. 42107). Also Ref. 26580.

Lao People's Dem. Rep. **native** **043281**

Known from the Mekong River (Ref. 43281). Found in Ban Hang Khone at Don Khone, 3 km below the fall line of the great waterfalls of the Mekong Basin at Lee Pee (Ref. 9497). Collected from Tha Ngon, Vientiane, Tha Bo, Khouai Deng (Ref. 4792). Museum: Mekong at Ban Hang Khone, just below Khone Falls, CAS 96961 (Ref. 5515). Also Ref. 4792, 30857, 36654, 37767, 37769.

Malaysia **native** **002091**

Known from Perak and Parang.

Thailand **native** **026336**

Occurs in Mekong River and its tributaries (Ref. 9648, 26336), Maeklong, Chao Phraya and Peninsular Thailand river systems (Ref. 26336). Also Ref. 26580, 36654.

Viet Nam **native** **036625**

Found in the Mekong Delta (Ref. 36625). Also Ref. 7050, 36654, 43281.

Total native = 7 Total introduced = 0

5.7. Summary information (no. of records) available for *Thynnichthys thynnoides*

Level: species in general **StockCode: 043281** **MainRef.: 043281**
Asia: Mekong and Chao Phraya Basins, Malay Peninsula, Sumatra, Borneo (Ref. 43281). Reported from the Maeklong River (Ref. 26336)

Ecology	1	Max. sizes	0	Strains	0
Food items	4	FAO catches	15502	Diseases	0
Food consumption	0	Genetics	0	Ciguatera	0
Diet composition	0	Allele frequency	0	Ecotoxicology	0
Ration	0	Heritability	0	Metabolism	0
Predators	0	Reproduction	0	Gill area	0

Morphology	1	Spawning	0	Swimming type	0
Processing	0	Eggs	0	Swimming speed	0
Growth/mortality	0	Egg dev't.	0	Vision	0
Maturity	0	Larvae	0	Brains	0
Recruitment	0	Larval dynamics	0	Introductions	0
L/W relat.	0	Aquaculture	0	Occurrence	41

Total = 1

5.8. Morphology of *Thynnichthys thynnoides*

Level : species in general **StockCode : 014994** **Main Ref. : 043281**

Diagnostic Characters
No Lips; plain silvery body (Ref. 43281).

Descriptive Characters
Operculum present : no

Meristic Characters
Scales on lateral line : 57-60
Scale rows above lateral line : 13-13

Dorsal fins
Number of fins : 1

Paired fins
Pectoral attributes : more or less normal
Pelvics attributes : more or less normal
position: abdominal

5.9. Ecology of *Thynnichthys thynnoides*

Level : species in general **StockCode: 014994, 016209** **Main Ref.: 033813**

Habitats
Streams : Yes Lake: Yes Cave: No
Estuaries/lagoons/brackish seas: No
Intertidal : No Soft : No Rocky : No Mangroves/marchs/swamps: No
Marine : No Oceanic : No Neritic : No Coral reefs: No
Tropical soft bottom : No Hard bottom: No Seagrass beds: No Macrophyte: No

Feeding
Feeding Type : plants/detritus+animals (troph. 2 - 2.19) Ref: 033813

Trophic level(s):	**Original sample**		**Unfished population**		**Remarks**
Estimation method	Troph	s.e	troph	s.e	
From indiv. food item:	2.3	0.18	-	-	Trophic level estimate

5.10. Food items for *Thynnichthys thynnoides*

Level: species in general **StockCode: 014994**

Food item			Ref.
plants			
other plants	benthic algae/weeds	unidentified	012693
	periphyton	unidentified	033813
phytoplankton	n.a./other phytoplankton	unidentified	033813
zooplankton			
other plank. invertebrates	n.a./other plank. invertebrates	unidentified	033813

Total: 4

5.11. References used for *Thynnichthys thynnoides*

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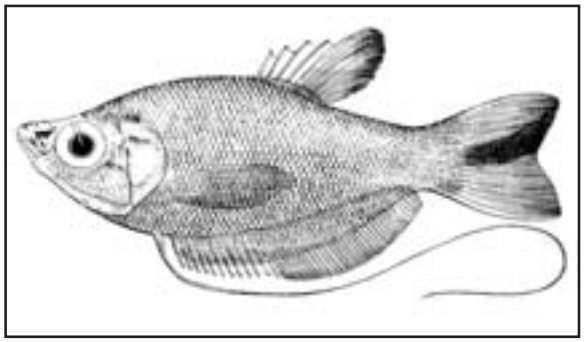
TRICHOGASTER MICROLEPIS

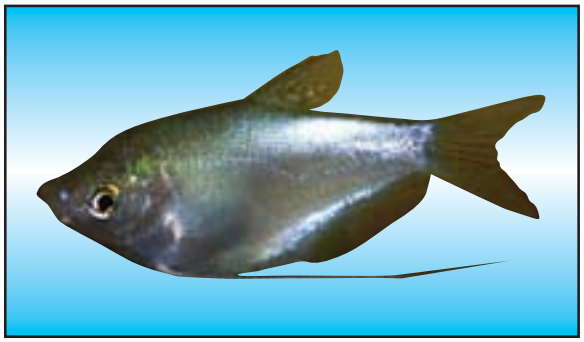
(Günther, 1868)

Moonlight gourami

ត្រីកន្ធាយស្លឹក



Picture by **FAO**



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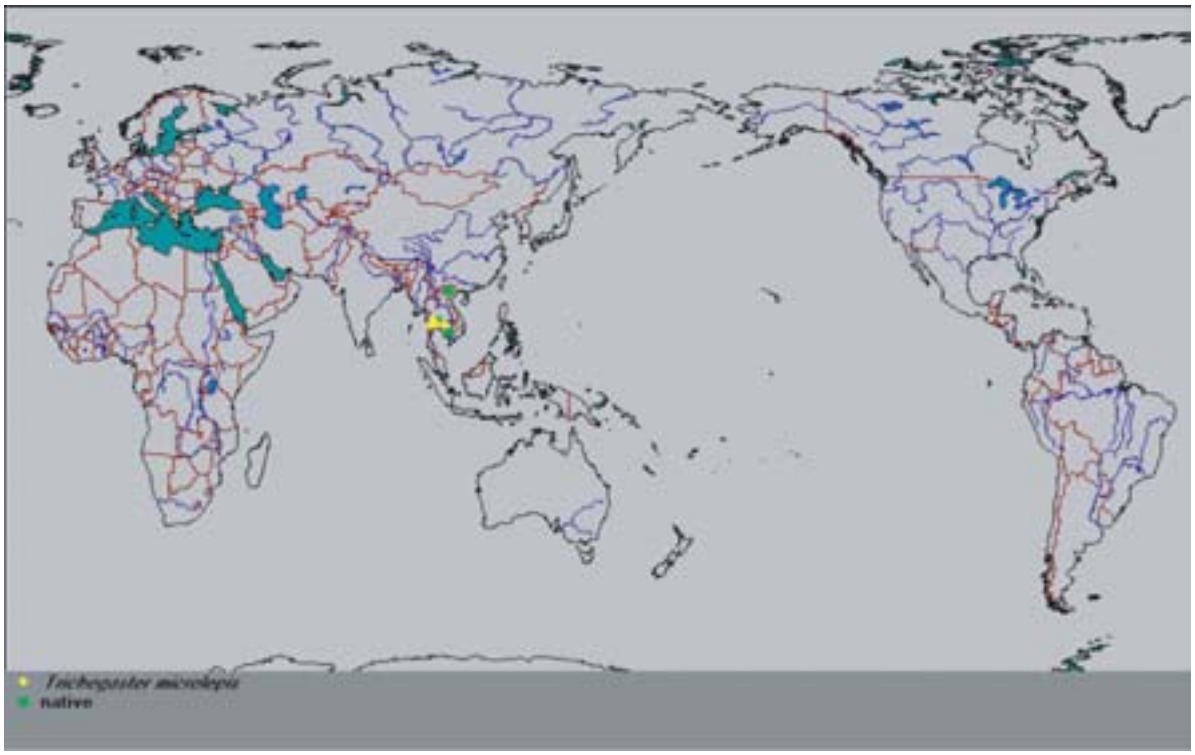

6.1. Summary information on the family Osphronemidae

Family : Osphronemidae (Gouramies)
Order : Perciformes MainRef. : 007463
Class : Actinopterygii (Ray-finned fishes) FamCode : 429
Number of genera : 13
Number of species : 49
Occurs in : O Marine
: O Brackish
: ☑ Freshwater
Aquarium fishes : some
First fossil record : Lower Tertiary Eocene Ref: 004830
Species currently in FishBase: Genera: 14 Species: 91 (Including subspecies) Complete : Yes

Remarks:

Distribution: Pakistan and India to Malay Archipelago and Korea. Teeth absent on prevomer and palatine. Protractile upper jaw. Lateral line single, complete and continuous in Osphroneminae; vestigial in other subfamilies, when present. Maximum dorsal soft rays 10; in Osphroneminae dorsal fin spines 11-13; soft rays 11-13, anal fin spines 9-12; soft rays 16-22, all scales ctenoid, about 80 cm maximum length. Pelvic fins with an elongate ray in many species. Some species are oral brooders and others build bubble nests. Other family name = Polyacanthidae. Four subfamilies recognized: Belontiinae (combtail gouramies), Macropodinae (Siamese fighting fishes, paradise fishes), Osphroneminae (giant gouramies) and Trichogastrinae (gouramies) (Eschmeyer CoF 2003, Ref. 46206). Family Belontiidae in Ref. 36739. Etymology: Greek, osphra, -as = smell + Greek, nema = filament (Ref. 45335).

6.2. Information on the genus *Trichogaster* and its synonyms

After Eschmeyer, March 2003 (Ref. 46206)

Colisa Status: synonym Gender: feminine
Cuvier in Cuvier & Valenciennes, 1831, p. 359, CAS Ref: 4881
Type by absolute tautonymy of senior objective synonym.
Type species : *Colisa vulgaris* Cuvier, 1831
Current genus : *Trichogaster*

Deschauenseeia Status: synonym Gender: feminine
Fowler, 1934, p. 147, CAS Ref: 1417
Type by original designation (also monotypic).
Type species : *Deschauenseeia chryseus* Fowler, 1934
Current genus : *Trichogaster*

Trichogaster Status: valid Gender: feminine
Bloch& Schneider, 1801, p. 164, CAS Ref: 471
Type by subsequent designation.
Type species : *Trichogaster fasciatus* Bloch& Schneider, 1801
Current genus : *Trichogaster*

Trichopodus Status: synonym Gender: masculine
Lacepède, 1801, p. 125, CAS Ref: 2710
Type by subsequent designation.
Type species : *Labrus trichopterus* Pallas, 1770
Current genus : *Trichogaster*

6.3. General information on *Trichogaster microlepis*

Classification

Class	: Actinopterygii (Ray-finned fishes)	MainRef. 012693
Order	: Perciformes	
Family	: Osphronemidae (Gouramies)	
Subfamily	: Trichogastrinae	
Species	: Trichogaster microlepis	
Author	: (Günther, 1861)	

Environment

Freshwater	: Yes	Habitat	: Demersal
Brackish	: No		
Saltwater	: No		

Importance

Importance to fisheries	: Minor commercial				
Main catching method	:				
Other methods	: ⊘ Seines	O Gillnets	⊘ Castnets	O Traps	O Spears
	O Trawls	O Dredges	O Liftnets	O Hooks+Lines	O Other
Used for aquaculture	: Never/rarely				
Used as bait	: Never/rarely				
Aquarium fish	: Commercial	based mainly on breeding			Ref. 001672
Game fish	: No				
Dangerous fish	: Harmless				
Electrobiology	: No special ability				
Size and age					
Maximum length (cm) (male/unsexed) :		13 SL			Ref. 043281

Remarks: *Found in ponds and swamps (Ref. 43281). Occurs in shallow sluggish or standing water habitats with a lot of aquatic vegetation. Common in the floodplain of the Lower Mekong. Feeds on zooplankton, crustaceans and aquatic insects. Marketed fresh (Ref. 12693).*

6.4. Synonyms, misidentifications, etc. used for *Trichogaster microlepis*

Synonym	Author	Status	Ref.
Trichogaster microlepis	Günther, 1861	new combination	012693
Osphromenus microlepis	Günther, 1861	original combination	012965

6.5. Common names for *Trichogaster microlepis*

Name	Language	Country	Ref.
Kamphleanh	Khmer	Cambodia	036651
Trey kamphlaenh	Khmer	Cambodia	041486
Trey kåmphleanh phluk	Khmer	Cambodia	036654
Trey Kanphleanh Phluk	Khmer	Cambodia	036654
Trey kawmphleanh phluk	Khmer	Cambodia	012693
Pla kra di nang	Thai	Thailand	009648
Moonlight gourami	English	United Kingdom	001739
Moonbeam gourami	English	USA (contiguous states)	004537
Moonlight gourami	English	USA (contiguous states)	004537
Cá sac diep	Vietnamese	Viet Nam	036625

6.6. Distribution of *Trichogaster microlepis*

Asia: originally occurring in the Mekong in Cambodia and Viet Nam and Chao MainRef.: 043281
Phraya Basins (Ref. 43281). Introduced in the Mekong Basin in Thailand and expected in Laos (Ref. 43281). A popular aquarium species which appeared in Colombia because of escapes from aquarium rearing facilities (Ref. 1739).

Latitudinal range: ° - ° Temperature range: 26 - 30 °C Ref.: 1672
Status of threat : NL.

Country	Status	Ref.
Cambodia	**native**	**012693**

Occurs in the Mekong Basin (Ref. 12693). Found around the Tonle Sap Lake and River (Ref. 36651). Known from Réam, Kompong Réat, Stung Sang (Ref. 36654) and Sangke River, Battambang province (Ref. 41486). Occurs in shallow and sluggish waters (Ref. 36686). Also Ref. 36662, 45353.

Colombia	**introduced**	**001739**
Singapore	**introduced**	**038466**
Thailand	**native**	**043281**

Naturally found in the Chao Phraya Basin (Ref. 43281). Introduced in the Mekong Basin (Ref. 43281). Recorded also from the Maeklong Basin (Ref. 26336). Reared in captivity for the ornamental fish trade (Ref. 6459). Also Ref. 9648, 1739, 36654.

Viet Nam	**native**	**043281**

Occurs in the Mekong Basin (Ref. 43281). Also Ref. 36654.

Total native = 3 Total introduced = 2

6.7. Introductions of *Trichogaster microlepis*

Asia: originally occurring in the Mekong in Cambodia and Viet Nam and Chao Phraya Basins (Ref. 43281). Introduced in the Mekong Basin in Thailand and expected in Laos (Ref. 43281). A popular aquarium species which appeared in Colombia because of escapes from aquarium rearing facilities (Ref. 1739).

Year : unknown Established : yes Ref. 001739
Introduced : to Colombia from Unknown
Reason : ornamental
Comments : Established in the Magdalena and Orinoco watersheds. Widespread in fish rearing facilities and has presumably escaped into local waters. Also Ref. 13364.

Year : unknown Established : probably yes Ref. 038466
Introduced : to Singapore from Unknown
Reason : unknown
Total = 12 Established: yes = 1 probably yes = 1

6.8. Summary information (no. of records) available for *Trichogaster microlepis*

Level: species in general **StockCode: 043281** **MainRef.: 043281**

Ecology	1	Max. sizes	0	Strains	0
Food items	3	FAO catches	15502	Diseases	4
Food consumption	0	Genetics	1	Ciguatera	0
Diet composition	0	Allele frequency	0	Ecotoxicology	0
Ration	0	Heritability	0	Metabolism	0

Predators	0	Reproduction	1	Gill area	0
Morphology	1	Spawning	0	Swimming type	0
Processing	0	Eggs	0	Swimming speed	0
Growth/mortality	0	Egg dev't.	0	Vision	0
Maturity	0	Larvae	0	Brains	0
Recruitment	0	Larval dynamics	0	Introductions	2
L/W relat.	0	Aquaculture	0	Occurrence	37

6.9. Morphology of *Trichogaster microlepis*

Level : species in general **StockCode : 004953** **Main Ref: 043281**

Diagnostic Characters
Body plain silvery (Ref. 43281)

Descriptive Characters

Striking features	: striking fins		
Body shape lateral	: short and / or deep	Dorsal head profile	: clearly concave
Operculum present	: no		
Type of eyes	: more or less normal		
Position/type of mouth	: terminal		

Pigmentation on trunk and tail

Horizontal stripes	: absent
Vertical stripes	: absent
Diagonal stripes	: absent
Curved stripes	: absent
Spots	: no spots

Meristic Characters
Dorsal fins

Number of fins	: 1	Spine total: 3-4
Adipose fin	: absent	

Caudal fin

Shape of fin	: more or less truncate
Attributes	: more or less normal

Paired fins

Pelvic attribution	: more or less normal	
Pelvic attribution	: reduced to filaments	
Position	: thoracic	before origin of D1

6.10. Genetic information for *Trichogaster microlepis*

MainRef.: 03437

Locality	: Unspecified	
Chromosome number (haploid)	: 23	
Chromosome number (diploid)	: 46	Ref: 034766
Genetic marker(s) present	: No	
DNA content (picogram, haploid)		
Chromosome arm no	: 46	Ref: 034766

6.11. General information on the reproduction of *Trichogaster microlepis*

Level : species in general **StockCode : 004953** **MainRef : 001672**

Mode and Type of Reproduction

Mode : dioecism
Fertilization : externa
Batch spawner : no
Reproductive guild : guarders/nesters
Builds bubble nest. Produces 500-1000 eggs

6.12. Ecology of *Trichogaster microlepis*

Level : species in general **StockCode : 00495, 004729**

Habitats Ref: 012693

Streams: Yes Lakes : Yes Caves : No
Estuaries/lagoons/brackish seas : No
Intertidal : No Soft : No Rocky : No Mangroves/marshes/swamps : No
Marine : No Oceanic : No Neritic : No Coral reefs : No
Tropical soft bottom : No Hard bottom : No Seagrass beds : No Macrophyte : No

Feeding

Feeding Type : mainly animals (troph. 2.8 and up) Ref.: 012693

Trophic level(s)	Original sample		Unfished population		Remarks
Estimation method	Troph	s.e	Troph	s.e	Trophic level estimate
From indiv. food items :	3.4	0.40		-	-

6.13. Food items for *Trichogaster microlepis*

Level: species in general **StockCode: 004953**

Food item			Ref.
zoobenthos			
insects	insects	unidentified	012693
other benth. invertebrates	n.a./other benth. Invertebrates	unidentified	012693
zooplankton			
other plank. invertebrates	n.a./other plank. invertebrates	unidentified	012693

6.14. Diseases reported for *Trichogaster microlepis*

StockCode: 004953 **Main Ref: 041805**

Bacterial diseases: Bacterial infections (general)
Occurrence:

O eggs	O fry	☑ females	O in the wild
O larvae	O juveniles	☑ males	☑ in culture

Bacterial diseases: Pop-eye disease
Exophthalmus:
Occurrence:

O eggs	O fry	⊘ females	O in the wild
O larvae	O juveniles	⊘ males	⊘ in culture

Parasitic infestations (protozoa, worms, etc.)
Helminthose (gills)
Causative agent : *Dactylogyrus sp.*
Occurrence : not specified

O eggs	O fry	⊘ females	O in the wild
O larvae	O juveniles	⊘ males	⊘ in culture

Parasitic infestations (protozoa, worms, etc.)
Helminthose (gills)
Causative agent : *Dactylogyrus sp.*
Occurrence : not specified

O eggs	O fry	⊘ females	O in the wild
O larvae	O juveniles	⊘ males	⊘ in culture

6.15. References used for *Trichogaster microlepis*

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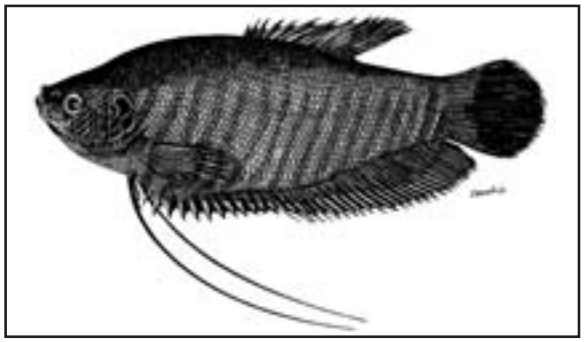
TRICHOGASTER PECTORALIS

(Regan, 1910)

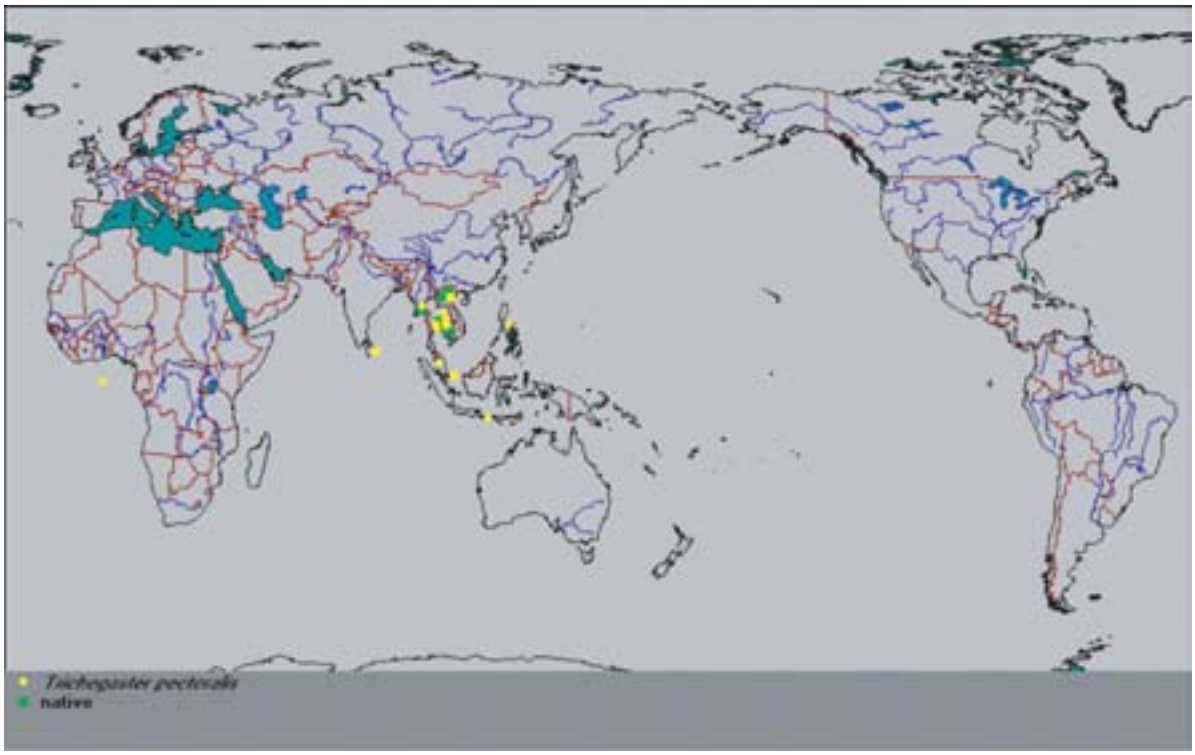
Snakeskin gourami

ត្រីកន្ធរ



Picture by **Escudero P.T**

Picture by **Baird, I.G.**



7.1. Summary information on the family Osphronemidae

Family : Osphronemidae (Gouramies)
Order : Perciformes MainRef. : 007463
Class : Actinopterygii (Ray-finned fishes) FamCode : 429
Number of genera: 13 Number of species: 49
Occurs in : O Marine
O Brackish
☑ Freshwater
Aquarium fishes : some
First fossil record : Lower Tertiary Eocene Ref.: 004830
Species currently in FishBase: Genera: 14 Species: 91 (Including subspecies) Complete: Yes

Remarks:

Distribution: Pakistan and India to Malay Archipelago and Korea. Teeth absent on prevomer and palatine. Protractile upper jaw. Lateral line single, complete and continous in Osphroneminae; vestigial in other subfamilies, when present. Maximum dorsal soft rays 10; in Osphroneminae dorsal fin spines 11-13; soft rays 11-13, anal fin spines 9-12; soft rays 16-22, all scales ctenoid, about 80 cm maximum length. Pelvic fins with an elongated ray in many species. Some species are oral brooders and others build bubble nests. Other family name = Polyacanthidae. Four subfamilies recognized: Belontiinae (combtail gouramies), Macropodinae (Siamese fighting fishes, paradisefishes), Osphroneminae (giant gouramies) and Trichogastrinae (gouramies) (Eschmeyer CoF 2003, Ref. 46206). Family Belontiidae in Ref. 36739.
Etymology: Greek, osphra, -as = smell + Greek, nema = filament (Ref. 45335).

7.2. Information on the genus *Trichogaster* and its synonyms

After Eschmeyer March 2003 (Ref. 46206)

Colisa Status: synonym Gender: feminine
Cuvier in Cuvier & Valenciennes, 1831, p. 359, CAS Ref: 4881
Type by absolute tautonymy of senior objective synonym.
Type species : *Colisa vulgaris* Cuvier, 1831
Current genus : *Trichogaster*

Deschauenseeia Status: synonym Gender: feminine
Fowler, 1934, p. 147, CAS Ref: 1417
Type by original designation (also monotypic).
Type species : *Deschauenseeia chryseus* Fowler, 1934
Current genus : *Trichogaster*

Trichogaster Status: valid Gender: feminine
Bloch& Schneider, 1801, p. 164, CAS Ref: 471
Type by subsequent designation.
Type species : *Trichogaster fasciatus* Bloch& Schneider, 1801
Current genus : *Trichogaster*

Trichopodus Status: synonym Gender: masculine
Lacepède, 1801, p. 125, CAS Ref: 2710
Type by subsequent designation.
Type species : *Labrus trichopterus* Pallas, 1770
Current genus : *Trichogaster*

7.3. General information on *Trichogaster pectoralis*

Classification

Class	: Actinopterygii (Ray-finned fishes)	MainRef. 012693
Order	: Perciformes	
Family	: Osphronemidae (Gouramies)	
Subfamily	: Trichogastrinae	
Species	: *Trichogaster pectoralis*	
Author	: (Regan, 1910)	

Environment

Freshwater	: Yes	Habitat	: Benthopelagic
Brackish	: No		
Saltwater	: No	Depth range	: 4

Importance

Landing statistics	: from 10,000 to 50,000 tonnes	Ref. 004931
Importance to fisheries	: Commercial	
Main catching method	:	

Other methods	: ☑ Seines	☑ Gillnets	☑ Castnets	☑ Traps	O Spears
	O Trawls	O Dredges	O Liftnets	O Hooks+Lines	☑ Other

Used for aquaculture	: Commercial	Ref. 012108
Used as bait	: Never/rarely	
Aquarium fish	: Commercial, based mainly on breeding	Ref. 001672
Game fish	: No	
Dangerous fish	: Potential pest	
Electrobiology	: No special ability	

Size and age

Maximum length (cm) (male/unsexed)	:	25 TL	Ref. 006028
Common length (cm) (male/unsexed)	:	15 TL	Ref. 002686
Maximum weight (g) (male/unsexed)	:	500.00	Ref. 006028

Remarks:

Found in shallow sluggish or standing-water habitats with a lot of aquatic vegetation. Occurs in flooded forests of the Lower Mekong and gradually moves back to rivers and the Tonle Sap Lake as floodwaters recede (Ref. 12693). Generally feeds on aquatic plants. Can breathe air directly, as well as absorb oxygen from water through its gills (Ref. 9987). The flesh is of good quality; may be grilled or used for fish soup. In Thailand there is a trade of dried pla salid for the benefit of people in areas where it is not caught (Ref 2686). Cultured both for food and for export as aquarium fish (Ref. 9987). Marketed fresh (Ref. 12693).

7.4. Synonyms, misidentifications, etc. used for *Trichogaster pectoralis*

Synonym	Author	Status	Ref.
Trichopodus pectoralis	Regan, 1910	original combination	004792
Trichogaster pectoralis	Regan, 1910	new combination	012693

7.5. Common names for *Trichogaster pectoralis*

Name	Language	Country	Ref.
Siamese gourami	English	Bangladesh	044085
Kanthor	Khmer	Cambodia	036651
Trey kantho	Khmer	Cambodia	002686
Trey kanthor	Khmer	Cambodia	036654
Trey kawnthor	Khmer	Cambodia	012693
Sepat siam	Malay	Indonesia	002686
Sepat siem, Siem	Malay	Indonesia	006107
Pa sa lit	Laotian	Lao People's Dem. Rep.	002686
Snakeskin gouramy	English	Malaysia	004789
Sepat siam	Malay	Malaysia	002686
Bubble nest builder	English	Myanmar	005736
Snakeskin gourami	English	Philippines	012157
Siamese gourami	English	Thailand	006459
Pla bai mai	Thai	Thailand	002686
Pla salid	Thai	Thailand	002686
Pla sa-lid	Thai	Thailand	042982
Snakeskin gourami	English	United Kingdom	003691
Snakeskin gourami	English	USA (contiguous states)	004537
Cá sac ran	Vietnamese	Viet Nam	036625
Cá sat rang	Vietnamese	Viet Nam	002686

7.6. Distribution of *Trichogaster pectoralis*

Asia: Mekong Basin in Laos, Thailand, Cambodia and Viet Nam; also Chao Phraya Basin (Ref. 43281). Introduced elsewhere and at least one country reports adverse ecological impact after introduction (Ref. 1739). MainRef.: 043281

Latitudinal range: 20° N - 22° S Temperature range: 23 - 28 °C Ref.: 1672
Status of threat: NL.

Country **Status** **Ref.**

Cambodia **native** **012693**

Naturally occurring in the Mekong Basin (Ref. 12693). Found around the Tonle Sap Lake and River (Ref. 36651) and Stung Sen (Ref. 36654). Known from the flooded forests of the Lower Mekong and gradually moves back to rivers and the Tonle Sap Lake as floodwaters recede (Ref. 12693, 36686). Also Ref. 3902, 33813, 37772, 43281.

Colombia **introduced** **001739**

Indonesia **introduced** **007050**

Introduced to Sumatra, Borneo, Java and Sulawesi (Ref. 7050). See also Ref. 8984 for nominal catches. Also Ref. 1739, 9987, 2847.

Lao People's Dem. Rep. **native** **043281**

Occurs in the Mekong Basin (Ref. 43281). Found in the Khone Falls (Ref. 37772). Also Ref. 2686, 4792, 30857, 36654.

Malaysia **reintroduced** **001739**

Formed an important fishery in the country (Ref. 1739 and 6095).

Myanmar **native** **005736**

This species is native to the Chao Phraya in Thailand and Mekong Basin in Laos, Thailand, Cambodia and Viet Nam and has been introduced elsewhere (Ref. 43281). Thus, status of occurrence in Myanmar needs confirmation.

New Caledonia **introduced** **001739**

Papua New Guinea **introduced** **002847**

Introduced to the Western Highlands, Central and Gulf Districts. Also Ref. 1739.

Philippines **introduced** **006096**

Common in Lake Bombon (=Taal) (Ref. 12165). Known from Lake Mainit, Mindanao (Ref. 4867). A fine food fish found in Laguna de Bay. Museum specimens collected in 1983 from the east bay, LRS-83129 and from various localities in 1984, LRS-84126 (Ref. 13460). Also introduced to Lake Buluan (Ref. 13492). Used in the aquarium trade (Ref. 12157). Also Ref. 1739.

Singapore **introduced** **006299**

Sri Lanka **introduced** **006028**

Found throughout Sri Lanka, particularly in the dry zone tanks, but not in the central hills. Also Ref. 4833.

Thailand **native** **043281**

Naturally found in Mekong and Chao Phraya Basins (Ref. 43281). Recorded from Maeklong and Southeast Thailand river systems (Ref. 26336). Naturally absent from Peninsular, Northern, and Western Thailand. Flesh of good quality; usually prepared by air drying. Reared in captivity for the ornamental fish trade (Ref. 6459). Also Ref. 2686, 7306, 9648, 9987, 36654.

Viet Nam **native** **036625**

Naturally found in the Mekong Basin (Ref. 43281). Also Ref. 36654.

7.7. Introductions of *Trichogaster pectoralis*

Asia: Mekong Basin in Laos, Thailand, Cambodia and Viet Nam; also Chao Phraya Basin (Ref. 43281). Introduced elsewhere and at least one country reports adverse ecological impact after introduction (Ref. 1739).

Year : 1952 Established: unknown Ref. 044085
Introduced : to Bangladesh from Singapore
Reason : unknown

Year : 1951 Established: yes Ref. 013686
Introduced : to Sri Lanka from Malaysia
Reason : aquaculture
Comments : Also introduced to fill ecological niche. Found in lagoons and marshes. Economically insignificant (Ref. 13364).
Introduced : to Colombia from Unknown
Reason : ornamental
Comments : Established in the Magdalena and Orinoco watersheds. Widespread in fish rearing facilities and has presumably escaped into local waters. Also Ref. 13364.

Year : unknown Established: no Ref. 001739
Introduced : to Hong Kong from Unknown
Reason : aquaculture
Comments : Assumed to be introduced for aquaculture. Also Ref. 13364.

Year : unknown Established: no Ref. 001739
Introduced : to India from Unknown
Reason : aquaculture
Comments : Assumed to be introduced for aquaculture. Also Ref. 13364.

Year : 1934 Established: yes Ref. 001739
Introduced : to Indonesia from Malaysia
Reason : aquaculture
Comments : Introduced by the Inland Fisheries Department which later became widely cultured in ponds and is established in open waters in Java, Borneo and Celebes. Present in the Ajamaru Lakes, Irian Jaya in the 1950s, but its current status is uncertain (Ref. 2847). Also Ref. 13364.

Year : unknown Established: no Ref. 001739
Introduced : to Japan from Unknown
Reason : aquaculture
Comments : Assumed to be introduced for aquaculture. Also Ref. 13364.

Year : 1921 Established: yes Ref. 001739
Introduced : to Malaysia from Thailand
Reason : aquaculture
Comments : Introduced in the Krian rice-bowl area, northwestern Peninsular Malaysia. Has colonized swamps, canals and rice paddies where it yields 94-202 kg/ha but has been badly affected by double cropping of rice and wide use of pesticides. Has also displaced to some extent the native *T. trichopterus*.

Year : unknown Established: yes Ref. 001739
Introduced : to New Caledonia from Unknown
Reason : aquaculture
Comments : Assumed to be introduced for aquaculture. Species became established. Also Ref. 13364.

Year : 1957 Established: no Ref. 013686
Introduced : to Pakistan from Malaysia
Reason : aquaculture
Comments : It is not cultured any longer.

Year : 1957 Established: yes Ref. 001739
Introduced : to Papua New Guinea from Malaysia
Reason : aquaculture
Comments : Distribution is very limited in the Central and Gulf provinces. Presently of no value although the species has potential in sewage ponds (Ref. 6367). Also Ref.13364.

Year : 1938 Established: yes Ref. 006096
Introduced : to Philippines from Thailand
Reason : aquaculture
Comments : Has populated rivers and reservoirs and is regarded as a useful addition to the fauna of swampy areas. Introduced by Dr. Eduardo Quisumbing (Ref. 4735). Used in the aquarium trade elsewhere and at least one country reports adverse ecological impact after introduction (Ref. 1739).

Year : 1938 Established : yes Ref. 006096
Introduced : to Philippines from Thailand
Reason : ornamental
Comments : Also Ref. 13364 and 38466.

7.8. Summary information (no. of records) available for *Trichogaster pectoralis*

Level: species in general **StockCode: 043281** **MainRef.: 043281**
Asia: Mekong Basin in Laos, Thailand, Cambodia and Viet Nam; also Chao Phraya Basin (Ref. 43281). Introduced elsewhere and at least one country reports adverse ecological impact after introduction (Ref. 1739).

Ecology	1	Max. sizes	0	Strains	0
Food items	0	FAO catches	15502	Diseases	4
Food consumption	0	Genetics	1	Ciguatera	0
Diet composition	1	Allele frequency	0	Ecotoxicology	0
Ration	0	Heritability	0	Metabolism	0

Predators	0	Reproduction	1	Gill area	0
Morphology	1	Spawning	1	Swimming type	0
Processing	0	Eggs	0	Swimming speed	0
Growth/mortality	0	Egg dev't.	0	Vision	0
Maturity	0	Larvae	0	Brains	0
Recruitment	0	Larval dynamics	0	Introductions	13
L/W relat.	0	Aquaculture	0	Occurrence	56

7.9. Morphology of *Trichogaster pectoralis*

Meristic Characters
Lateral Lines
Interrupted : no
Scales on lateral line 52 -57
Scales in lateral series 55-63
Barbels 0
Gill rakers on lower limb total : 66-70
Vertebrae preanal -
Dorsal fins
Dorsal attributes : other
Number of fins : - spines total : 78-soft-rays total : 10-11
Adipose fin : absent finlets dorsal : 0-0 finlets ventral : 0-0
Caudal fin
Shape of fin : more or less truncate
Attributes : more or less normal
Anal fin
Number of fins : - spines total : -912 soft-rays total : 3338
Paired fins
Pectoral attributes : more or less normal
spines : soft-rays : 910
Pelvics attributes : other (see diagnosis)

7.10. Genetic information for *Trichogaster pectoralis*

MainRef.: 034370

Locality:
Chromosome number (haploid) : 23
Chromosome number (diploid) : 46 Ref: 034766
Genetic marker(s) present : No
Chromosome arm no : 46 Ref: 034766

7.11. FAO aquaculture production data for *Trichogaster pectoralis*

Country (Area)		1984 1991 1998	1985 1992 1999	1986 1993 2000	1987 1994 2001	1988 1995	1989 1996	1990 1997
Indonesia (4)	(t)	1,281	1,410	1,410	1,410	2,000	2,000	2,464
	(US$'000)	1,922	2,115	2,115	3,503	4,000	4,000	4,928
	(t)	2,039	2,760	1,821	2,626	3,397	3,115	3,177
	(US$'000)	4,282	5,796	4,006	5,777	7,134	6,542	6,672
	(t)	3,211	3,762	3,478	2,808			
	(US$'000)	6,743	7,900	7,304	5,897			
Malaysia (4)	(t)	6	13	107	0	0	0	0
	(US$'000)	4	10	131	0	0	0	0
	(t)	0	0	0	0	0	0	0
	(US$'000)	0	0	0	0	0	0	0
	(t)	0	0	0	0			
	(US$'000)	0	0	0	0			
Thailand (4)	(t)	11,780	16,578	16,578	14,269	14,901	13,196	12,800
	(US$'000)	6,080	8,091	9,252	8,362	8,091	7,943	8,091
	(t)	13,300	12,958	15,449	16,993	16,714	14,200	17,230
	(US$'000)	10,946	11,443	17,463	19,339	24,621	20,178	23,037
	(t)	17,214	21,989	21,577	19,690			
	(US$'000)	15,878	28,962	28,755	26,385			
	(mt)	13,067	18,001	17,651	16,215	16,901	15,196	15,264
Total: 3	(US$'000)	8,006	10,216	11,505	11,865	12,807	11,943	14,942
	(mt)	15,339	15,718	17,270	19,619	20,111	17,315	20,407
	(US$'000)	15,228	17,239	21,469	25,116	31,755	26,719	29,709
	(mt)	20,425	25,751	25,055	22,498			
	(US$'000)	22,621	36,862	36,059	32,281			

7.12. General information on the reproduction of *Trichogaster pectoralis*

Level: species in general **StockCode : 000515** **MainRef.: 006459**

Mode and Type of Reproduction

Mode : dioecism
Fertilization : external
Batch spawner : no
Reproductive guild : guarders, nesters

Male creates a bubble-nest at the surface. After fertilization, the male, with the use of its mouth, collects the eggs and pushes them up into the bubble-nest (Ref. 6459). Male guards the eggs until hatching (Ref. 9987); both parents care for the young (Ref. 6028).

Spawning Information for Trichogaster pectoralis

Locality : Thailand **Stockcode: 000515**

Season (% of mature females; 111 = presence of mature females)
Main Ref.: 006459

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
111	111	111	111		111						

Fecundity: min 1,000 (n) Female size: .00 (g) (cm) Ref. 006459
max 10,000 (n) 200 (g) (cm)

7.13. Ecology of *Trichogaster pectoralis*

Level : species in general **StockCode : 000515, 000499** **Main Ref.: 013497**
Habitats **Ref: 013497**

Streams : No Lake: Yes Cave: No
Estuaries/lagoons/brackish seas: No
Intertidal : No Soft : No Rocky : No Mangroves/marchs/swamps: No
Marine : No Oceanic: No Neritic : No Coral reefs: No
Tropicalsoft bottom: No Hard bottom: No Seagrass beds: No Macrophyte: No

Feeding
Feeding Type : plants/detritus+animals (troph. 2.8 and up) Ref: 033813
Feding Habil : selective plankton feeding

Trophic level(s):	**Original sample**	**Unfished population**	**Remarks**
Estimation method	Troph s.e	troph s.e	
From diet composition:	3.2 0.36	3.1 0.29 troph of adults	Ref: 013497
From indiv. food item:	3.4 045	Trophic level estimate	

Additional remarks
Feeds mainly on planktonic invertebrates (Ref. 13497).

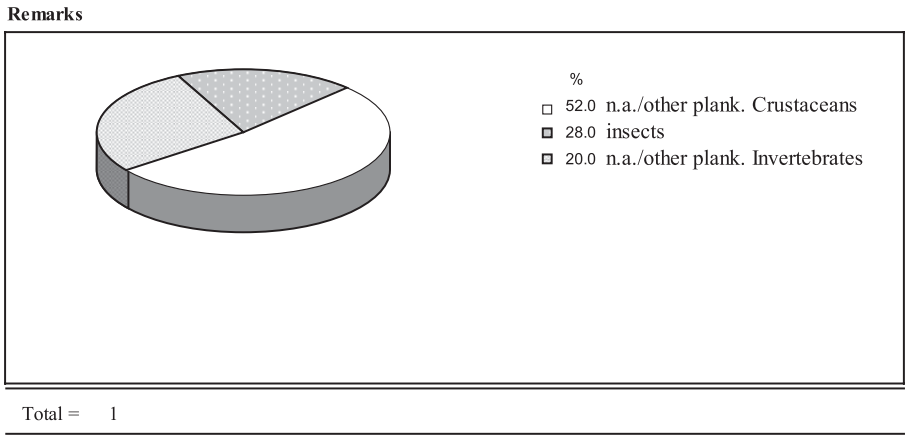
7.14. Diet composition of *Trichogaster pectoralis*

StockCode : 000515 **MainRef.: 013497**

Locality : Bukit Merah Reservoir, between September 1979 and August 1980
Stage of fish sampled: adults Number: 28

Food group (%)

52.0	n.a./other plank. Crustaceans, Copepoda, Cladocera, Decapoda, juv./adults
28.0	insects, both aquatic and terrestrial forms of Diptera, Odonata, etc., adults
20.0	n.a./other plank. Invertebrates, Paramecium , Rotifera, parasitic Nematoda, juv./adults
100.0	Total



7.15. Diseases reported for *Trichogaster pectoralis*

StockCode: 000515 **MainRef.: 026129**
Parasitic infestations (protozoa, worms, etc.), Trichodinosis Ref.: 000193
Trichodinella sp. Trichodina infestation

Causative agent : *Trichodina sp*.
Occurrence : Luzon, Philippines, 1981
Prevalence : common

Remarks: *Infestation occurs most commonly in the gills and skin. Besides 1981 (Guerrero and Paycana), the infestation also occurred in 1982 (by the same author).*

MainRef.: 041805
Bacterial diseases Bacterial infections (general) Ref.: 041805
Causative agent : N.A.
Occurrence : not specified

O eggs	O fry	☑ females	O in the wild
O larvae	O juveniles	☑ males	☑ in culture

Remarks: *Parasitic infestations (protozoa, worms, etc.), Dactylogyrus gill flukes disease*
Ref.: 000060
Helminthose (gills)
Causative agent : *Dactylogyrus sp.*
Occurrence : not specified

O eggs	O fry	☑ females	O in the wild
O larvae	O juveniles	☑ males	☑ in culture

Parasitic infestations (protozoa, worms, etc.), Costia disease Ref.: 000193
Costiasis; Turbidity of the skin; Ichthyobodo necatrix
Causative agent : *Dactylogyrus sp.*
Occurrence : not specified

O eggs	O fry	☑ females	O in the wild
O larvae	O juveniles	☑ males	☑ in culture

7.16. FAO annual catch data (in tonnes) for *Trichogaster pectoralis*

Country									
1950	**1951**	**1952**	**1953**	**1954**	**1955**	**1956**	**1957**	**1958**	**1959**
1960	**1961**	**1962**	**1963**	**1964**	**1965**	**1966**	**1967**	**1968**	**1969**
1970	**1971**	**1972**	**1973**	**1974**	**1975**	**1976**	**1977**	**1978**	**1979**
1980	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**
1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
2000	**2001**								
Indonesia		FAO Area : 4							
10,036	10,217	11,498	13,379	12,558	14,337	16,515	17,892	14,668	19,743
19,317	21,491	22,463	20,934	22,804	22,373	26,940	28,106	24,271	23,735
23,197	23,258	23,717	20,698	21,611	18,755	23,123	22,897	19,641	22,897
20,399	21,691	26,959	25,803	24,671	23,182	20,454	22,972	24,512	24,332
25,444	23,399	24,670	26,911	23,587	24,904	30,408	21,375	20,936	23,265
20,875	21,260								

Thailand			FAO Area : 4							
	0	0	0	10	10	20	30	30	30	30
	70	160	260	330	530	640	748	850	1,000	1,050
	2,500	2,200	1,620	1,60	2,200	2,664	6,317	3,818	3,818	9,342
	10,008	6,956	161	10,039	7,066	6,478	6,892	5,920	2,699	704
	815	500	542	751	200	186	385	353	1,486	511
	700	730								
Total:	2									
	10,036	10,217	11,498	13,389	12,568	14,357	16,545	17,922	14,698	19,773
	19,387	21,651	22,723	21,264	23,334	23,013	27,688	28,956	25,271	24,785
	25,697	25,458	25,337	22,298	23,811	21,419	29,440	26,715	22,460	30,630
	30,407	28,647	27,120	35,842	31,737	29,660	27,346	28,892	27,211	25,036
	26,259	23,899	25,212	27,662	23,787	25,090	30,793	21,728	22,422	23,776
	21,575	21,990								

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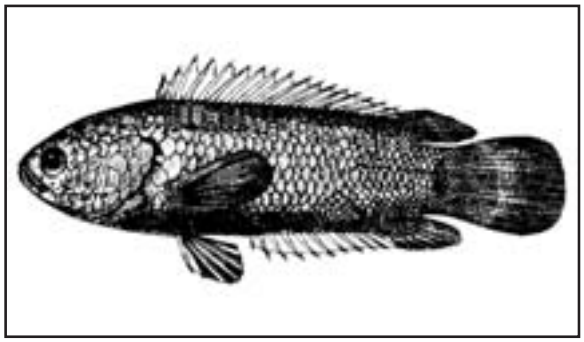
ANABAS TESTUDINEUS

(Bloch, 1792)

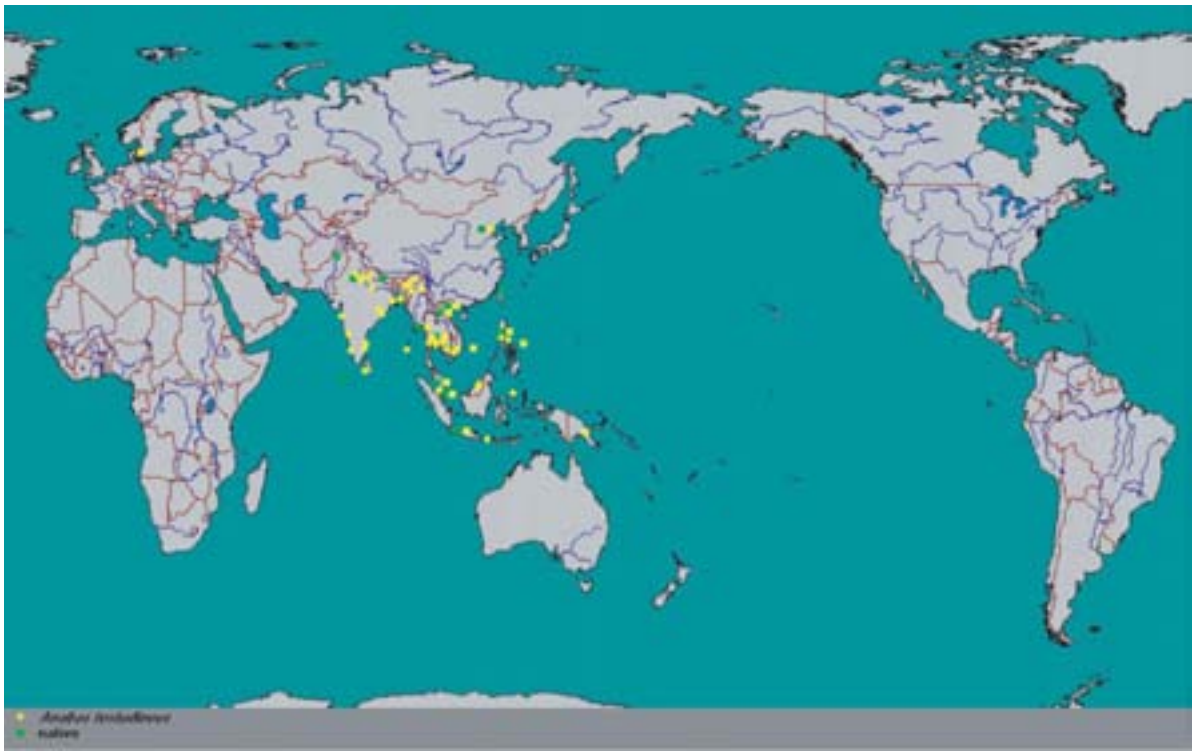
Climbing perch

ត្រីក្រាញ់



Picture by **FAO**

Picture by **Warren, T.**



8.1. Summary information on the family Anabantidae

Family : Anabantidae (Climbing gouramies)
Order : Perciformes MainRef.: 007463
Class : Actinopterygii (Ray-finned fishes) FamCode : 426
Number of genera : 3
Number of species : 30
Occurs in O Marine
☑ Brackish
☑ Freshwater
Aquarium fishes : some

Species currently in FishBase: Genera: 5 Species: 37 (Including subspecies) Complete: Yes

Remarks: *Distribution: Africa and India to Philippines. Rarely brackish. Fixed conical teeth on jaws, prevomer, and parasphenoid. Relatively large mouth. Upper jaw slighlty protractile. The genus Sandelia has only cycloid scales, few gill rakers, and generally a carnivorous diet.*
Etymology: Greek, anabas = aoristo of anabainein = to climb (Ref. 45335).

8.2. Information on the genus *Anabas* and its synonyms

After Eschmeyer, March 2003 (Ref. 46206)

Anabas Status : valid Gender : masculine
Cloquet (ex Cuvier), 1816, p. 35, CAS Ref: 12560
Type by monotypy.
Type species : *Perca scandens* Daldorff, 1797
Current genus : *Anabas*

Coius Status : valid Gender : masculine
Hamilton, 1822, p. 85, 369, CAS Ref: 2031
Type by subsequent designation.
Type species : *Coius coboius* Hamilton, 1822
Current genus : *Anabas*

8.3. General information on *Anabas testudineus*

Classification
Class : Actinopterygii (Ray-finned fishes) MainRef. 004833
Order : Perciformes
Family : Anabantidae (Climbing gouramies)
Species : Anabas testudineus
Author : (Bloch, 1792)
Date Eschmeyer, pers. comm.

Environment
Freshwater : Yes Habitat : Demersal
Brackish : Yes
Saltwater : No Depth range : 0

Importance

Landing statistics	: From 10,000 to 50,000 tonnes	Ref. 004931
Importance to fisheries	: Commercial	
Main catching method	:	
Other methods	: ⊘ Seines ⊘ Gillnets O Castnets O Traps O Spears O Trawls O Dredges O Liftnets O Hooks+Lines O Other	
Used for aquaculture	: Commercial	Ref. 012108
Used as bait	: Never/rarely	
Aquarium fish	: Commercial based mainly on breeding	Ref. 007020
Game fish	: No	
Dangerous fish	: Harmless	
Electrobiology	: No special ability	
Maximum length (cm) (male/unsexed)	: 25 TL	Ref. 004833
Common length (cm) (male/unsexed)	: 12.5 TL	Ref. 002686

Remarks:

Found mostly in canals, lakes, ponds, swamps and estuaries (Ref. 41236). Occurs in medium to large rivers, brooks, flooded fields and stagnant water bodies including sluggish flowing canals (Ref. 12975). Often found in areas with dense vegetation (Ref. 12693). Can tolerate extremely unfavorable water conditions and is associated mainly with turbid, stagnant waters (Ref. 6028). Remains buried under the mud during dry season (Ref. 1479). Feeds on macrophytic vegetation, shrimps and fish fry (Ref. 6028). Reported to undertake lateral migration from the Mekong mainstream, or other permanent water bodies, to flooded areas during the flood season and return to the permanent water bodies at the onset of the dry season (Ref. 37770). During the dry season, it stays in pools associated with submerged woods and shrubs (Ref. 37770). Possesses an accessory air-breathing organ (Ref. 2847). Able to survive for several days or weeks out of water if the air breathing organs can be kept moist (Ref. 1479). Fish famous for its ability to walk; important food fish in Southeast Asia, considered a tasty food fish (Ref. 6565) but not of the finest quality since it is bony (Ref. 2686). Usually sold live in markets where it is kept alive for several days by keeping it moist (Ref. 12693).

8.4. Synonyms, misidentifications, etc. used for *Anabas testudineus*

Synonym	Author	Status	Ref.
Anabas elongatus	Reuvens, 1895	junior synonym	001672
Anabas macrocephalus	Bleeker, 1854	junior synonym	002073
Anabas microcephalus	Bleeker, 1857	junior synonym	001672
Perca scandens	Daldorff, 1797	junior synonym	002091
Lutjanus scandens	Daldorff, 1797	junior synonym	001672
Sparus scandens	Daldorff, 1797	junior synonym	001672
Anabas scandens	Daldorff, 1797	junior synonym	002091
Amphiprion scansor	Bloch & Schneider, 1801	junior synonym	001672
Anabas spinosus	Gray, 1834	junior synonym	001672
Anabas testudinens	Bloch, 1792	misspelling	004833
Amphiprion testudineus	Bloch, 1792	new combination	001672
Antias testudineus	Bloch, 1792	new combination	001672
Anthias testudineus	Bloch, 1792	original combination	002091
Anabas testudineus	Bloch, 1792	new combination	004833
Sparus testudineus	Bloch, 1792	new combination	001672
Anabas testudineus lacustri	Das, 1966	junior synonym	004833
Anabas testudineus ricei	Das, 1966	junior synonym	004833
Anabas testudineus riveri	Das, 1966	junior synonym	004833

Lutjanus testudo	Lacepède, 1802	other	001672
Anabas trifoliatus	Kaup, 1860	junior synonym	001672
Anabas variegatus	Bleeker, 1851	junior synonym	001672

8.5. Common names for *Anabas testudineus*

Name	Language	Country	Ref.
Koi	Bengali	Bangladesh	001479
Climbing perch	English	Bangladesh	039989
Kranh	Khmer	Cambodia	036651
Trey kranh	Khmer	Cambodia	002686
Trey kranh srai	Khmer	Cambodia	012693
Koi	Assamese	India	047932
Koi	Bengali	India	047932
Climbing perch	English	India	004833
Khakoi	Khasi	India	047932
Kallemutti	Malayalam	India	043640
Karippidi	Malayalam	India	043640
Karooppu	Malayalam	India	043640
Betik	Javanese	Indonesia	006107
Krucilan	Javanese	Indonesia	006107
Bale belang	Makassarese	Indonesia	006107
Betok	Malay	Indonesia	002686
Pa kheng	Laotian	Lao People's Dem. Rep.	002686
Climbing perch	English	Malaysia	004789
Pepuyu	Malay	Malaysia	002686
Puyu	Malay	Malaysia	004789
Nga-bye-ma	Burmese	Myanmar	002686
Nga-pri	Burmese	Myanmar	007100
Climbing perch	English	Myanmar	005736
Kabai	Nepali	Nepal	009496
Climbing perch	English	Papua New Guinea	006993
Atas	Bikol	Philippines	002857
Puyo	Bikol	Philippines	002857
Arraro	Ilokano	Philippines	002857
Pla mor	Thai	Thailand	002686
Pla mor Thai	Thai	Thailand	042982
Climbing perch	English	United Kingdom	001739
Climbing perch	English	USA (contiguous states)	003814
Cá ro dong Cá	Vietnamese	Viet Nam	036625
Rô dông	Vietnamese	Viet Nam	002686

8.6. Distribution of *Anabas testudineus*

Asia: India to Wallace line including China. May have been distributed in more areas than were commonly reported. MainRef. 004833
Latitudinal range: 28° N - 10° S Temperature range: 22 - 30 °C Ref.: 1672
Status of threat: NL.

Country	Status	Ref.
Bangladesh	**native**	**001479**

Also Ref. 4833, 39989, 41236, 43638.

Cambodia	**native**	**012693**

Occurs in the Mekong Basin (Ref. 27732). Found around the Tonle Sap Great Lake and River (Ref. 36651). Known from Réam, Stung Sen, Angkor (Ref. 36654) and Sangke River,

Battambang province (Ref. 41486). Occurs in sluggish or still standing waters (Ref. 36686). Also Ref. 3902, 33813, 36662, 41236, 45353.

China **native** **027732**

Occurs in the Mekong Basin in Yunnan (Ref. 27732). Also Ref. 1739, 36654, 41236.

India **native** **004833**

Known throughout India (Ref. 43640). Recorded from Western Ghats Rivers, Maharashtra (Ref. 43634) and Chilka Lake (Ref. 29108). Also Ref. 36654, 41236, 45255.

Indonesia **native** **007050**

Known from Sulawesi (Ref. 2847) and Lake Tundai, South Borneo (Ref. 42107). Translocated to Irian Jaya, possibly in the Merauke area (Ref. 2847). Also Ref. 27732.

Lao People's Dem. Rep. **native** **043281**

Occurs in the Mekong Basin. Found in the Lower and Middle Xe Bangfai, and the Middle Nam Theun (Ref. 27732) and Ban Hang Khone, a village on an island in the middle of the mainstream Mekong River just below the Great Khone Waterfalls in Khong District, Champasak Province (Ref. 37767). Also Ref. 4792, 30857.

Malaysia **native** **004835**

Maldives **native** **001739**

Myanmar **native** **005736**

Also Ref. 4833, 41236, 43638.

Nepal **native** **009496**

Found in Terai region at 76-135 m altitude. Also Ref. 41236, 43638.

Pakistan **native** **004833**

Papua New Guinea **introduced** **002847**

Established in Sepik area (Ref. 6993) and in the extreme southwest corner of the country (Ref. 50786). Also Ref. 9420.

Philippines **native** **000280**

Status to be confirmed. Recorded as introduced (Ref. 6565). May be a native fish due to museum records dating back to 1901 (USNM, 00126367) (Ref. 38732). Found in slow streams, ditches, ponds, and lakes, but not in the mountains (Ref. 2854). Reported from Laguna de Bay; museum specimens collected in 1984 from the south bay, LRS-84128 (Ref. 13460) and Sta. Maria River, in Laguna; Lake Buhi, Camarines Sur; Lake Naujan, Mindoro; San Fernando, La Union; Rosales, La Union; Tacloban, Leyte; Lake Buluan and the rivers of Cotabato (Rio Grande and Fort Pikit) (Ref. 00280). A specimen was caught in 1989 with hook and line from Lake Manguao, Palawan (Ref. 13489). Known from Lake Buluan (Ref. 13492) and Lake Lanao (Ref. 13446). Considered a tasty but bony food fish (Ref. 6565). Used in the aquarium trade (Ref. 12157). Also Ref. 4835, 4833, 7050, 12744, 43638.

Singapore **native** **004833**

Sri Lanka **native** **006028**

Widespread throughout the country except in the central hills. Also Ref.4833, 27732, 41236, 43281, 43638.

Taiwan **native** **027732**

Also Ref. 7050, 43281.

Thailand **native** **026336**

Found in Mekong, Chao Phraya, Maeklong, Peninsular and Southeast Thailand river systems (Ref. 26336). Also Ref. 1632, 7306, 9648, 27732, 41236.

USA (contiguous states) **introduced** **003814**

Formerly established in Florida, but has since disappeared.

Viet Nam **native** **044416**

Found in Hanoi, Northern Viet Nam (Ref. 44416). Occurs in the Mekong Basin (Ref. 27732). Also Ref. 2682, 36625, 37770.

8.7. Introductions of *Anabas testudineus*

Asia: India to Wallace line including China. May have been distributed in more areas than were commonly reported.

Year : 1976 - 1979 Established: yes Ref. 006349
Introduced : to Papua New Guinea from Indonesia
Reason : diffusion from neighboring countries
Comments : Introduction may have occurred after the mid-1970s (Ref. 13364). Introduced to Irian Jaya, possibly in the Merauke area and has now spread to the Morehead River in Papua New Guinea (Ref. 2847). Has been reported to occur in Bensbach River from Merauke area in West Papua. Records at Balamuk village indicate that it was first encountered in the Weam area of the Bensbach in 1985, possibly entering the river via drainage ditches associated with the building of the Trans-Irian Highway, which in 1982 crossed the international border in two locations near the upper part of Fly River (Ref.50786).

Year : unknown Established : yes Ref. 006565
Introduced : to Philippines from Malaysia
Reason : aquaculture
Comments : Used in rice-fish culture but not considered a first class food fish because they are rather bony. Introduced by Hindu and Malay fishermen (Ref. 6565). May be a native fish due to museum record dating back to 1901 (USNM 00126367) (Ref. 38732)

Year : unknown Established: no Ref. 001739
Introduced : to USA from Southeast Asia
Reason : ornamental
Comments : Introduced through accidental release from aquaria (Ref. 4709). Reported to be established in South Florida but no specimens were known to have been collected (Ref. 6029). Also Ref. 13364.

8.8. Summary information (no. of records) available for *Anabas testudineus*

Ecology	1	Max. sizes	2	Strains	0
Food items	20	FAO catches	15502	Diseases	17
Food consumption	0	Genetics	7	Ciguatera	0
Diet composition	0	Allele frequency	0	Ecotoxicology	2
Ration	0	Heritability	0	Metabolism	86
Predators	0	Reproduction	1	Gill area	5
Morphology	1	Spawning	4	Swimming type	1
Processing	0	Eggs	1	Swimming speed	0
Growth/mortality	0	Egg dev't	0	Vision	0
Maturity	0	Larvae	0	Brains	0
Recruitment	0	Larval dynamics	0	Introductions	3
L/W relat.	0	Aquaculture	0	Occurrence	308

8.9. Morphology of *Anabas testudineus*

Diagnostic Characters
Color in life dark to pale greenish, very pale below, back dusky to olive; head with longitudinal stripes ventrally; posterior margin of opercle with a dark spot; iris golden reddish. Body form variable, affected by age and amount of food consumed. Scaled head with 4-5 rows between eye & rear margin of pre-operculum. Scales large & regularly arranged, ciliate.

Descriptive Characters
Striking features : none Cross section: compressed
Body shape lateral : short and / or deep Dorsal head profile: more or less straight
Operculum present : Yes
Type of eyes : more or less normal
Position/type of mouth : terminal more or less normal

Teeth Presence

lower jaw:	present	conical
upper jaw:	present	conical
vomerine:	present	conical
palatine:	absent	
Comment:	Teeth small and fixed.	

Pigmentation on trunk and tail

Horizontal stripes	: absent	dorsal and ventral ending before ventral contour
Vertical stripes	: absent	
Diagonal stripes	: absent	
Curved stripes	: absent	
Spots	: one spot only lateral mainly on tail	
Dorsal fin (D1)	: more than one spot or stripe	no colored margin
Caudal fin	: no spots or stripes	no colored margin
Anal fin (A1)	: no spots or stripes	no colored margin

Meristic Characters

Lateral Lines	: 1
Interrupted	: yes
Scales on lateral line	: 26-32
Scales in lateral series	: 21 -29
Scale rows above lateral line	: 3-4
Scale rows below lateral line	: 811
Scales around caudal peduncle	: -
Barbels	: 0

Dorsal fins

Dorsal attributes	: extending over most of the back length		
Number of fins	: -	spines total : 1620-	soft-rays total : 710
Adipose fin	: absent	finlets dorsal : -0000	finlets ventral : 0-0

Caudal fin

Shape of fin	: more or less truncate

Anal fin

Number of fins	: -	spines total : -911	soft-rays total : 811

Paired fins

Pectoral attributes	: more or less normal	
spines	: 0	soft-rays : 1416
Pelvics attributes	: more or less normal	
position	: thoracic behind origin of D1	
spines	: 1	soft-rays : 55

Body proportions (based on picture)

Standard length (SL) (cm)

Preorbital length (% HL) Maximum depth (% SL) 30.8

8.10. Genetic information for *Anabas testudineus*

Main Ref.: 008973

Locality : Unspecified
Chromosome number (haploid) :23
Chromosome number (diploid) : 46
Genetic marker(s) present : No
Chromosome arm no. : 50

Main Ref.: 028174

Locality : Kalyani, Western Bengal, India

Chromosome number (haploid)	: 23	Ref.:034344
Chromosome number (diploid)	: 46	
Genetic marker(s) present	: No	
Sex-determining mechanism	: 46	Ref.:034344

Remarks: *Sex chromosomes not distinguishable. No banding technique used. CF= 4st+2t+22T (2n=28) (calculated from Ref. 028174)*

Main Ref.: 030184

Locality : Unspecified

Chromosome number (haploid)	: 24	Ref.: 030184
Chromosome number (diploid)	: 48	Ref.: 030184
Genetic marker(s) present	: No	
Chromosome arm no.	: 48	Ref.: 030184

Main Ref.: 030184

Locality : Unspecified
Chromosome number (haploid) : 23
Chromosome number (diploid) : 46
Genetic marker(s) present : No
Chromosome arm no. : 50

Remarks: *CF = 4st + 20A + 22t.*

Main Ref.: 030184

Locality : Porto Novo, India

Chromosome number (haploid)	: 23	Ref.: 029628
Chromosome number (diploid)	: 46	Ref.: 029628
Genetic marker(s) present:	: No	
Chromosome arm no.	: 50	Ref.: 029628

Main Ref.: 030184

Locality : Unspecified

Chromosome number (haploid)	: 24	
Chromosome number (diploid)	: 48	Ref.: 034738
Genetic marker(s) present	: No	
Chromosome arm no.	:48	Ref.: 034738

Remarks: *Also in Ref. 034370.*

Main Ref.: 034370

Locality : Unspecified

Chromosome number (haploid)	: 24	
Chromosome number (diploid)	: 48	Ref.: 034738
Genetic marker(s) present	: No	
Chromosome arm no.	: 48	Ref.: 034738

8.11. FAO aquaculture production data for *Anabas testudineus*

Country (Area)		1984 1991 1998	1985 1992 1999	1986 1993 2000	1987 1994 2001	1988 1995	1989 1996	1990 1997
India (4)	(t)	32,000	35,000	35,000	35,000	35,000	35,000	35,000
	(US$'000)	64,000	76,545	79,632	84,315	81,468	75,392	76,545
	(t)	34,912	50,323	50,000	50,000	55,000	55,000	60,000
	(US$'000)	56,557	70,653	70,950	54,400	57,970	57,750	60,000
	(t)	65,000	65,000	0	0			
	(US$'000)	65,000	65,000	0	0			
Thailand (4)	(t)	930	925	835	724	791	1,014	145
	(US$'000)	744	773	635	563	712	933	125
	(t)	828	826	1,768	1,944	949	1,189	910
	(US$'000)	779	890	1,936	2,144	1,448	1,347	1,080
	(t)	763	760	470	720			
	(US$'000)	1,513	883	541	828			
	(mt)	32,930	35,925	36,835	37,224	37,291	39,014	39,405
Total: 2								
	(US$'000)	64,744	77,318	80,267	84,878	82,180	76,325	78,678
	(mt)	35,740	51,149	51,768	51,944	55,949	56,189	60,910
	(US$'000)	57,336	71,544	72,886	56,544	59,418	59,097	61,080
	(mt)	65,763	65,760	470	720			
	(US$'000)	66,513	65,883	541	828			

8.12. General information on the reproduction of *Anabas testudineus*

Level : species in general **StockCode: 000511** **MainRef: 007471**
Mode and Type of Reproduction

Mode : dioecism
Fertilization : external
Spawning frequency
Batch spawner : no
Reproductive guild : guarders, clutch tenders
Guards eggs at the surface of hypoxic water (Ref.: 7471)

Spawning Information for *Anabas testudineus*

Locality : Mekong Mainstream **Stockcode: 000511**
Season (% of mature females; 111= presence of mature females): Main Ref.: 037770

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		111	111	111	111	111	111	111			

Comment: Eggs occur during March to October.

Locality: Bangladesh **Stockcode: 000511**
Season (% of mature females; 111= presence of mature females): MainRef.: 001479

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
				111	111	111	111				

Fecundity: min 39,687 (n) Female size: (g) 11.00 (cm)
max 86,108 (n) (g) 27.90 (cm)
Comment: Hatching takes place in 18 hours at a temperature of 28.5°C. Egg diameter 0.7 mm.

Locality : Viet Nam, Mekong Mainstream at Dong Thap province **Stockcode: 000511**
Season (% of mature females; 111= presence of mature females): Main Ref.: 037770

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
				111	111	111					

Comment: Spawning takes place in irrigated ricefields.

Locality :Thailand, Mekong Mainstream at Chiang Khong province **Stockcode: 000511**
Season (% of mature females; 111= presence of mature females): Main Ref.: 037770

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
					111	111	111				

Comment: Spawning takes place in rain fed paddy.

8.13. Available information on eggs of *Anabas testudineus*

Level : species in general **StockCode: 00511**

Water parameters with reported egg occurrences Main Ref.: 041595
Descriptive characters
Place of development : buoyant (pelagic)
Shape of egg : spherical
Attributes : smooth

Meristic and metric (mm) characters

	max	Ref.	mod	Ref.	mod	Ref.
Oil globules	1	041595	1	041595	1	041595
Oil diameter (mm)						
Egg diameter (mm)	1	041595	1	041595	1	041595
Reference diameter (RD)						

8.14. Ecology of *Anabas testudineus*

Level : species in general **StockCode: 000511, 000495** **Main Ref.: 012693**

Habitats **Ref.: 012693**
Streams : Yes Lakes : No Caves : No (Exclusively: No)
Estuaries/lagoons/brackish seas : No
Intertidal : No Soft: No Rocky : No Mangroves/marshes/swamps: No
Marine : No Oceanic: No Neritic : No Coral reefs: No
Tropical soft bottom: No Hard bottom: No Seagrass beds : No Macrophyte : No

Feeding
Feeding Type : mainly animals (troph. 2.8 and up) Ref. 012693
Feeding Habit : hunting macrofauna (predator) Ref. 012975

Trophic level(s)	**Original sample**		**Unfished population**		**Remarks**
Estimation method	Troph	s.e.	Troph	s.e.	
From diet composition					
From indiv. food items	2.6	0.28	-	-	

8.15. Food items for *Anabas testudineus*

Level: species in general **StockCode: 000511**

Food item				
nekton				
finfish	bony fish	unidentified	unidentified	012693
plants				
other plants	benthic algae/weeds	unidentified	unidentified	006028
phytoplankton	blue-green algae	Characeae	Charasp.	048780
		Desmidiaceae	Closteriu	048780
		Oscillatoriaceae	Lyngbyasp.	048780
		Oscillatoriaceae	Oscillatoriasp.	048780
		Zygnemataceae	Spirogyrasp.	048780
		Zygnemataceae	Zygnemasp.	048780
	diatoms	Euglenaceae	Euglenasp.	048780
		Hookeriaceae	Chaetophorasp.	048780
	green algae	Oedogoniaceae	Oedogonium	048780
		Ulotrichaceae	Ulothrixsp.	048780
		Volvocaceae	Volvoxsp.	048780
zoobenthos				
benth. crust.	ostracods	Cyprididae	Cyprissp.	048780
	shrimps/prawns	unidentified	unidentified	006028
insects	insects	unidentified	unidentified	048780
mollusks	n.a./other mollusks	unidentified	unidentified mollusks	048780
zooplankton				
fish (early stages)	fish eggs/larvae	unidentified	unidentified	006028
plank. crust.	cladocerans	Cyclopidae	Cyclopssp.	048780
		Daphniidae	Daphniasp.	048780

8.16. Maximum weight/length/age of *Anabas testudineus*

Locality: India, Tamil Nadu **StockCode: 000511**
Ref.: 043637

Max length	(cm): 10.5	Same specimen for WL: No	Sex : unsexed
Max age	(yrs): No	Same specimen for LT: No	

Locality: Nepal, None specified **StockCode: 000511**
Ref.: 009496

Max length	(cm): 12.5	Same specimens for WL: No	Sex: unsexed

8.17. Diseases reported for *Anabas testudineus*

StockCode: 000511 **Main Ref.: 042533**
Parasitic infestations (protozoa, worms, etc.): Tripartiella disease Ref. : 026129
Causative agent : *Tripartiella sp*.
Occurrence : Chittagong, Bangladesh, 1993

Remarks: *Location of infestation not specified. Infection of Tripartiella sp. is doubtful, G. Asmat (pers.comm. 07/03).*

Parasitic infestations (protozoa, worms, etc.): Dactylogyrus gill flukes disease Ref.: 000060
Helminthose (gills)
Causative agent : *Dactylogyrus sp.*
Occurrence : Chittagong and Raj Shani, Bangladesh, 1993

Remarks: *Infestation commonly occurs in the gills and skin.*

Parasitic infestations (protozoa, worms, etc.): Contracaecum disease Ref.: 000026
Nematode
Causative agent : *Contracaecum sp*.
Occurrence : Dhaka, Bangladesh, 1997

Remarks : *Infestation commonly occurs in the intestine, stomach, pyloric caeca, body cavity and viscera.*

Parasitic infestations (protozoa, worms, etc.): Paragendria infestation 2 Ref. : 042533
Causative agent : *Paragendria wallagonia*
Occurrence : Dhaka, Bangladesh, 1997

Remarks: *Infestation commonly occurs in the intestine.*

Parasitic infestations (protozoa, worms, etc.): Gnathostoma infestation Ref.: 026129
Causative agent : *Gnathostoma spinigerum*
Occurrence : Dhaka, Bangladesh, 1997

Remarks: *Infestation commonly occurs in the intestine, stomach, muscles, body cavity and viscera.*

Parasitic infestations (protozoa, worms, etc.): Allocreadium infestation 6 Ref. : 042533
Causative agent : *Allocreadium minutum*
Occurrence : Dhaka, Bangladesh, 1993

Remarks: *Infestation commonly occurs in the intestine.*

Parasitic infestations (protozoa, worms, etc.): Neopecoelina infestation Ref.: 042533
Causative agent : *Neopecoelina saharanpuriensis*
Occurrence : Dhaka, Bangladesh, 1997

Remarks: *Infestation commonly occurs in the stomach, stomach wall, intestine and intestinal wall.*

Parasitic infestations (protozoa, worms, etc.): Camallanus infestation 1 Ref.: 026129
Camallanus (Zeylanema) anabantis
Causative agent : *Camallanus anabantis*
Occurrence : Dhaka and/or Sylhet, Bangladesh, 1973

Remarks: *Infestation commonly occurs in the intestine. Besides 1973 (Bashirullah), the infestation also occurred in 1978 (Ahmed and Begum) in the localities of Barisal and Dhaka, 1997 (Akther et al.) in Dhaka, and 1981 (Ahmed) with no specific locality cited.*

Parasitic infestations (protozoa, worms, etc.): Camallanus infestation 8 Ref.: 042533
Camallanus (Zeylanema) pearsei
Causative agent : *Camallanus pearsei*
Occurrence : Dhaka and/or Sylhet, Bangladesh, 1973

Remarks: *Infestation commonly occurs in the intestine. Besides 1973 (Bashirullah), the infestation also occurred in 1978 (Ahmed and Begum) in the localities of Barisal and Dhaka, 1997 (Akther et al.) in Dhaka, and 1981 (Ahmed) with no specific locality cited.*

Parasitic infestations (protozoa, worms, etc.): Stellantchasmus infestation Ref.: 026129
Causative agent : *Stellantchasmus falcatus*
Occurrence : Luzon, Philippines, 1939

Remarks: *Infestation occurs most commonly in the musculature and body cavity.*

Parasitic infestations (protozoa, worms, etc.): Camallanus infestation 1 Ref.: 026129
Camallanus (Zeylanema) anabantis
Causative agent : *Camallanus anabantis*
Occurrence : Luzon, Philippines, 1966

Remarks: *Infestation occurs most commonly in the intestine. Besides 1966 (Velasquez), the infestation also occurred in 1980 by the same author.*

Parasitic infestations (protozoa, worms, etc.): Centrocestus infestation 2 Ref.: 026129
Causative agent : *Centrocestus caninus*
Occurrence : Luzon, Philippines, 1939

Remarks: *Infestation occurs most commonly in the gills.*

Parasitic infestations (protozoa, worms, etc.) , Procerovum infestation 2 Ref.: 026129
Causative agent : *Procerovum varium*
Occurrence : Luzon, Philippines, 1966

Remarks: *Infestation occurs most commonly in the musculature and base of fins.*

Parasitic infestations (protozoa, worms, etc.): Gnathostoma infestation Ref.: 026129
Causative agent : *Gnathostoma spinigerum*
Occurrence : Luzon, Philippines, 1938

Remarks: *Infestation occurs most commonly in the musculature and visceral linings. Besides 1938 (Refuerzo and Garcia), the infestation was also reported in 1974 (Velasquez). Refuerzo and Garcia experimentally exposed host fish to infected copepods. But they are uncertain whether infections of these larvae were the result of natural or experimental infection.*

Parasitic infestations (protozoa, worms, etc.): Procerovum infestation 1 Ref.: 026129
Causative agent : *Procerovum calderoni*
Occurrence : Luzon, Philippines, 1939

Remarks: *Common infestation (Vazquez-Colet and Africa). The infestation was also reported in 1940 (Vazquez-Colet and Africa), 1966 (Velasquez) in Luzon, and in 1973 (Velasquez) in Luzon and Mindanao*

Parasitic infestations (protozoa, worms, etc.): Lernaea infestation Ref.: 026129
Causative agent : *Lernaea lophiara*
Occurrence : Luzon, Philippines, 1988

Remarks: *The head of the parasite is embedded in the musculature with the body protruding externally. This report involves an experimental infection.*

Parasitic infestations (protozoa, worms, etc.): Anchor worm disease Ref.: 000060
Lernaeosis
Causative agent : *Lernaea cyprinacea*
Occurrence : Luzon (Laguna de Bay), Philippines, 1988

Remarks: *The parasite's head is commornly embedded in the eye or nostril of a host with the body portruding externally.*

8.18. Ecotoxicology of *Anabas testudineus*

Chemical	LC50 (mg/l)	Exposure Stage (h)	Ref.
Malathion	28	28	008721
Malathion	11.8	96	008721

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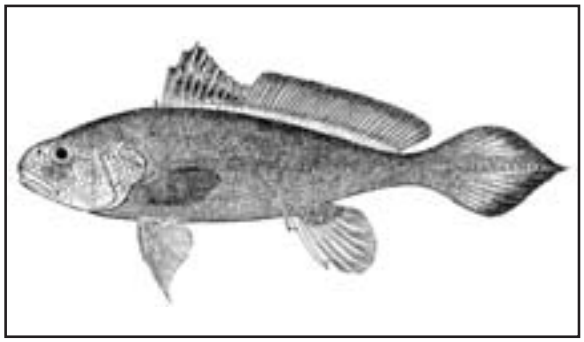
BOESEMANIA MICROLEPIS

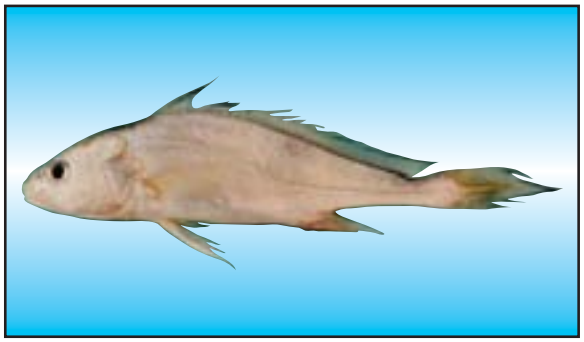
(Bleeker, 1858)

Boeseman croaker

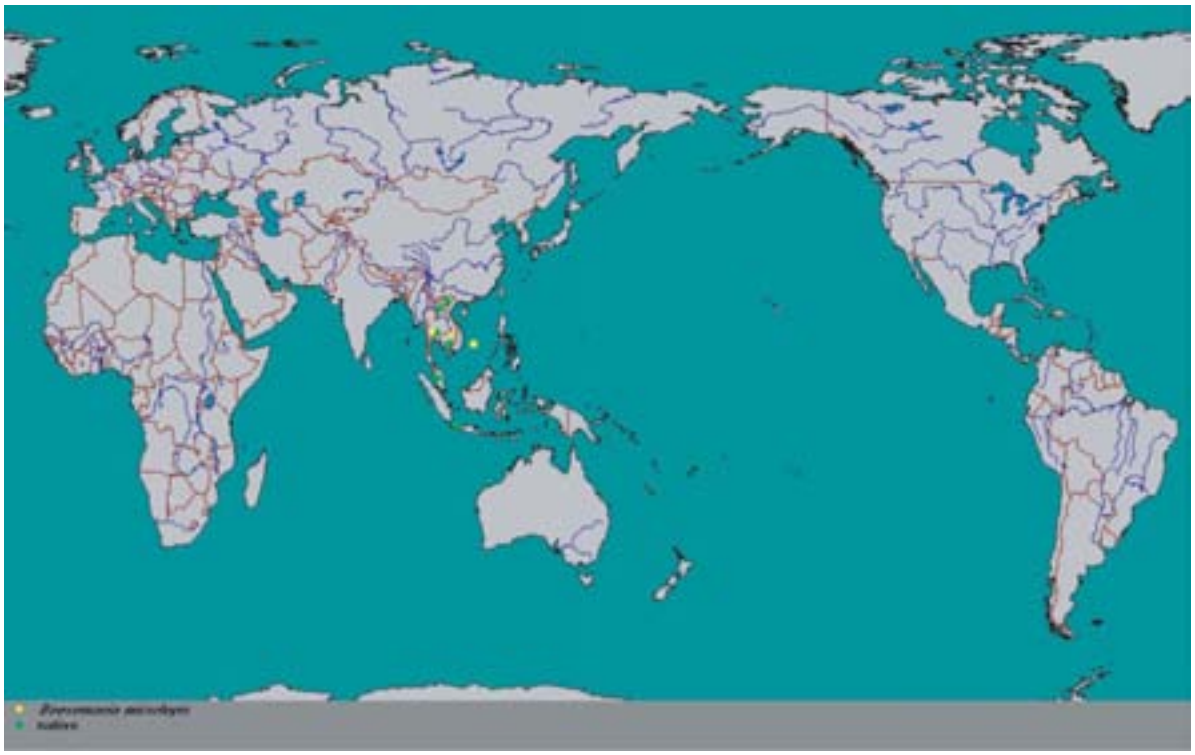
ត្រីប្រមា



Picture by **FAO**



Picture by **Warren, T.**



9.1. Summary information on the family Sciaenidae

Family : Sciaenidae (Drums or croakers) MainRef.: 007463
Order : Perciformes FamCode: 331
Class : Actinopterygii (Ray-finned fishes)

Number of genera : 70
Number of species : 270
Occurs in : ☑ Marine
☑ Brackish
☑ Freshwater

Aquarium fishes : some

Species currently in FishBase: Genera: 71 Species: 275 (Including subspecies) Complete: No

Remarks:

Drums or croakers are distributed in the Atlantic, Indian and Pacific oceans. Dorsal fin long, having a deep notch between the spinous and soft-rayed parts, but the parts rarely separate. Spinous part with 6-13 spines; the soft-rayed part with 1 spine and usually 20-35 soft rays. Anal fin having 1 or 2 usually weak spines; soft rays 6-13. Lateral line reaching end of caudal fin. Slightly emarginate to rounded caudal fin. Opercle with the upper bony edge forked. Gill opening with a bony flap above it. Some species with 1 barbel or a patch of small barbels on chin. Large cavernous canals in head. Snout and lower jaw with conspicuous pores. Vomer and palatine toothless. Swim bladder usually having many branches and used as a resonating chamber. Exceptionally large otoliths. Vertebrae 24-29. Bottom dwelling carnivores, feeding on benthic invertebrates and small fishes. Juveniles are popular aquarium fishes, but difficult to maintain.
Etymology: Greek, skiaina = a kind of fish (Ref. 45335).

9.2. Information on the genus *Boesemania* and its synonyms

After Eschmeyer, March 2003 (Ref. 46206)

Boesemania Status: valid Gender: feminine
Trewavas, 1977, p. 309, CAS Ref: 4459
Type by original designation (also monotypic).
Type species : *Johnius microlepis* Bleeker, 1859
Current genus : *Boesemania*

9.3. General information on *Boesemania microlepis*

Classification
Class : Actinopterygii (Ray-finned fishes) MainRef. 009772
Order : Perciformes
Family : Sciaenidae (Drums or croakers)
Species : Boesemania microlepis
Author : (Bleeker, 1858)

Environment
Freshwater : Yes Habitat: Benthopelagic
Brackish : Yes
Saltwater : No

Importance

Importance to fisheries	: Highly commercial				Ref. 043946
Main catching method	: Gillnets				
Other methods	: ☑ Seines	O Gillnets	O Castnets	O Traps	O Spears
	☑ Trawls	O Dredges	O Liftnets	☑ Hooks+Lines	O Other

Used for aquaculture	: Never/rarely
Used as bait	: Never/rarely
Aquarium fish	: Never/rarely
Game fish	: No
Dangerous fish	: Harmless
Electrobiology	: No special ability

Size and age

Maximum length	(cm)	(male/unsexed) :	100 SL	(female):	
Common length	(cm)	(male/unsexed) :	20 SL	(female):	
Maximum weight	(g)	(male/unsexed) :	7,000.00	(female):	

Remarks:

Occurs in flowing waters of large rivers. Found in the deep-water pools of the Mekong River even during the dry-season (Ref. 43946). Appears to be sedentary with no clear-cut migratory habits (Ref. 43946). Feeds on crustaceans and small fishes (Ref. 12693). Loud continuous croaking was observed during the dry season in the deep water areas of the Mekong River which could be linked with spawning behavior (Ref. 43946). Marketed fresh (Ref. 12693). Most desirable and highly priced food fishes in the Mekong region (Ref. 43946).

9.4. Synonyms, misidentifications, etc. used for *Boesemania microlepis*

Synonym	Author	Status	Ref.
Otolithoides aeneocorpus	Fowler, 1935	junior synonym	005369
Pseudosciaena microlepis	Bleeker, 1858	new combination	007050
Johnius microlepis	Bleeker, 1858	original combination	026282
Boesemania microlepis	Bleeker, 1858	new combination	009772
Nibea soldado	nonLacepède, 1802	misidentification	009772

Total = 5

9.5. Common names for *Boesemania microlepis*

Name	Language	Country	Ref.
Prama	Khmer	Cambodia	036651
Trey pama	Khmer	Cambodia	036654
Trey promah	Khmer	Cambodia	012693
Terusan	Malay	Indonesia	006107
Pa gooawng	Laotian	Lao People's Dem. Rep.	009497
Pa kouang	Laotian	Lao People's Dem. Rep.	037767
Pba gooawng	Laotian	Lao People's Dem. Rep.	012369
Pla hang kew	Thai	Thailand	043946
Pla ma	Thai	Thailand	043946
Boeseman croaker	English	United Kingdom	009772
Smallscale croaker	English	United Kingdom	012693
Ca suu	Vietnamese	Viet Nam	043946

9.6. Distribution of *Boesemania microlepis*

Asia: Thailand to Viet Nam and Sumatra. Main Ref.: 009772
Latitudinal range: °-° Temperature range: - °C Ref.:
Status of threat: NL.

Country	Status	Ref.
Cambodia	**native**	**009772**

Known from the Mekong Basin (Ref. 37772). Found around the Tonle Sap River and the Great Lake (Ref.36651), Sékong at Stung Treng (Ref. 36654). Occurs in flowing waters (Ref. 36686). Also Ref. 37772.

Indonesia	**native**	**007050**

Known from Sumatra (Ref. 7050, 36654).

Lao People's Dem. Rep.	**native**	**043281**

Known from the Mekong Basin (Ref. 43281). Occurs in the Khone Falls (Ref. 37772) and Ban Hang Khone at Don Khone, 3 km below the fall line of the great waterfalls of the Mekong Basin at Lee Pee. Reported to migrate upstream during the dry season in January/March in Southern Laos (Ref. 37769). Regarded by Ban Hang Khone fishermen as non-migratory. The present catch in Ban Hang Khone is reportedly only about 10% of what it was in 1970 (Ref. 9497). Becoming locally rare (Ref. 43281). Museum: Mekong at Ban Hang Khone, just below Khone Falls, CAS 94880 (Ref. 5515). Also Ref. 12369, 36654, 37767.

Malaysia	**native**	**043946**

Found in river tributaries of peninsular Malaysia (Ref. 43946).

Thailand	**native**	**026336**

Known from the Mekong, Chao Phraya, Maeklong Basins (Ref. 26336); Nan, Tachin and Bang Pakong Rivers (Ref. 43946). Museum: Mekong River mainstream at Bung Kla, ca. 140 km nw of Nakhon Phanom, CAS 95034 (Ref. 5515). Also Ref. 9772.

Viet Nam	**native**	**009772**

Known from the Mekong Basin (Ref. 43281). Also Ref. 36654.

9.7. Summary information (no. of records) available for *Boesemania microlepis*

Asia: Thailand to Viet Nam and Sumatra.

Ecology	1	Max. sizes	0	Strains	0
Food items	4	FAO catches	15502	Diseases	0
Food consumption	0	Genetics	0	Ciguatera	0
Diet composition	0	Allele frequency	0	Ecotoxicology	0
Ration	0	Heritability	0	Metabolism	0
Predators	0	Reproduction	0	Gill area	0
Morphology	0	Spawning	7	Swimming type	0
Processing	0	Eggs	0	Swimming speed	0
Growth/mortality	0	Egg dev't.	0	Vision	0
Maturity	0	Larvae	0	Brains	0
Recruitment	0	Larval dynamics	0	Introductions	0
L/W relat.	1	Aquaculture	0	Occurrence	22

Total = 1

9.8. General Information on the Reproduction of *Boesemania microlepis*

Locality : Laos, Veun Tholathi **Stockcode: 014571**
Season (% of mature females; 111= presence of mature females) : Main Ref.:043946
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
111 111 111
Comment: This vast spawning ground is included in the areas being protected within the Fish Conservation Zones (FCZ) since 1994 and has since benefited from this scheme (Ref. 43946).

Locality : Laos, Veun Te/Veun Va **Stockcode: 014571**
Season (% of mature females; 111= presence of mature females): MainRef. : 043946
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
111 111 111

Locality : Laos, Veun Phou That **Stockcode: 014571**
Season (% of mature females; 111= presence of mature females) : Main Ref.:043946
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
111 111 111

Locality : Laos, Veun Louk **Stockcode: 014571**
Season (% of mature females; 111= presence of mature females) : Main Ref.:043946
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
111 111 111

Locality : Laos, Veun Hat Phou **Stockcode: 014571**
Season (% of mature females; 111= presence of mature females) : Main Ref.:043946
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
111 111 111

Locality : Laos, Khoum Pa Tong/Peo Ta **Stockcode: 014571**
Season (% of mature females; 111= presence of mature females) : Main Ref.:043946
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
111 111 111
Comment: Also included in the Fish Conservation Zone scheme in 1995 but not successful enough like the other areas that have been protected (Ref. : 43946)

Locality : Laos, Ban Hang Khone **Stockcode: 014571**
Season (% of mature females; 111= presence of mature females) : Main Ref.: 012369
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
111 111
Comment: Large fish in spawning condition were caught in February and March and were thought to spawn in Boong Pba Gooawng and Boong Pba Jook, just in front of Ban Hang Khone. Fish vocalized at mid-afternoon every day in February-March, producing a deep "oot-oot" sound.

9.9. Ecology of *Boesemania microlepis*

Level: species in general **Stockcode: 04571, 015224** **Main Ref. 033813**

Habitats:
Stream: Yes Caves: No (Exclusively: No)
Estuaries /logoons /brackish seas: No
Intertidal: No Soft: No Rocky: No Mangoves/marshes/swamps: No
Marine: No Oceanic: No Neritic: No Coral reefs: No
Tropical soft bottom: No Hard bottom: No Seagrass beds: No Macrophyte: No

Feeding
Feeding type: mainly animals (troph. 2.8 and up) Ref.: 033813
Feeding habitat: hunting macrofaun (predator)

Trophic level(s):	**Original sample**		**Unfished population**		**Remarks**
Estimation method	Troph	s.e.	Troph	s.e	
From diet composition:					
From indiv. food item:	3.7	0.59	-	-	Trophic level estimate

9.10. Food items for *Boesemania microlepis*

Level: species in general **StockCode: 014571**

Food item			
Nekton			
Finfish	bonyfish	unidentified	033813
Zoobenthos			
benth. crust	n.a/other benth crustaceans	unidentified	033813
	shrimps/prawns	unidentified shrimp	043946
insect	insect	unidentified	043946

9.11. References used for *Boesemania microlepis*

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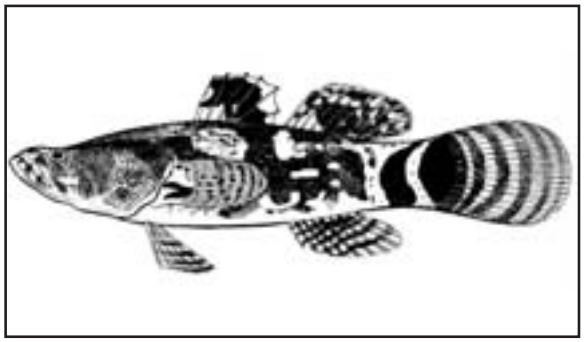
OXYELEOTRIS MARMORATA

(Bleeker, 1852)

Marble goby

ត្រីជីរ



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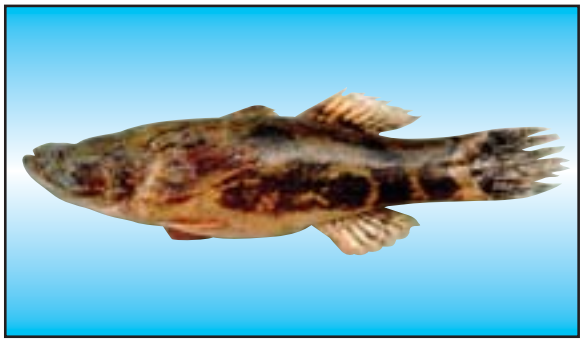
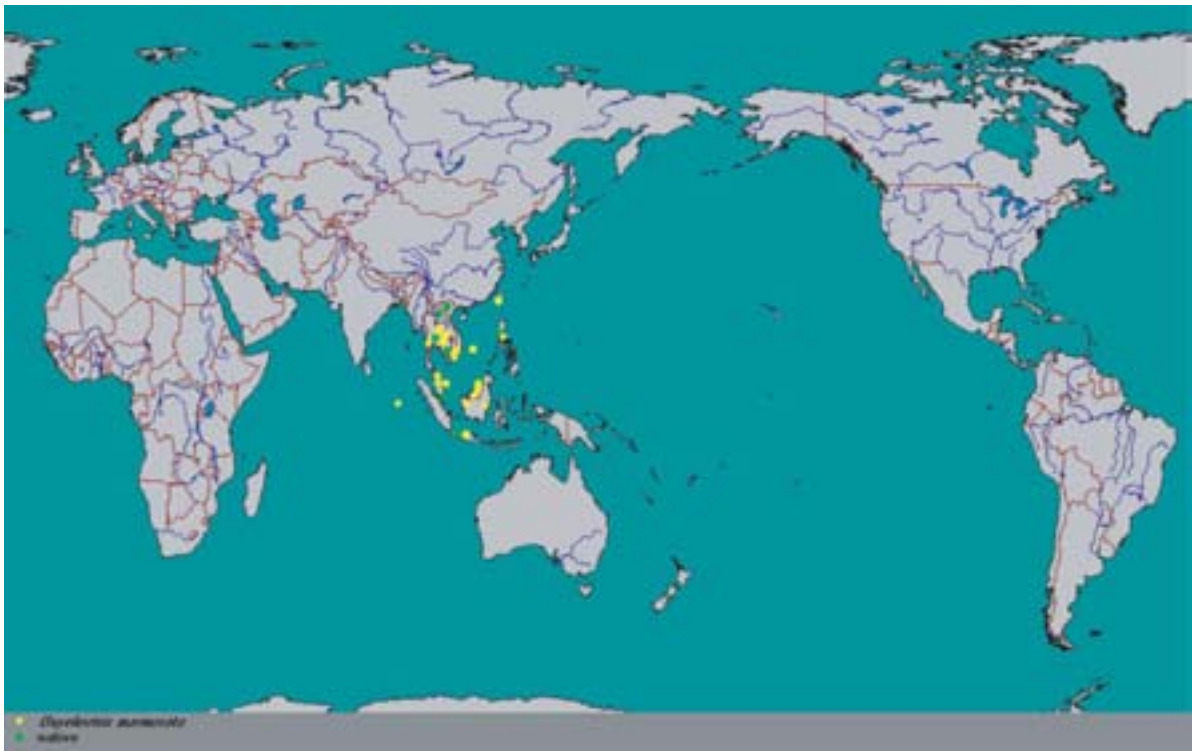


Picture by **Warren, T.**



10.1. Summary information on the family Eleotridae

Family : Eleotridae (Sleepers)
Order : Perciformes MainRef. 007463
Class : Actinopterygii (Ray-finned fishes) FamCode: 404
Number of genera : 35
Number of species : 150
Occurs in : ☑ Marine
☑ Brackish
☑ Freshwater
Aquarium fishes: some

Species currently in FishBase: Genera: 39 Species: 158 (Including subspecies) Complete: No

Remarks:

Distribution: most tropical and subtropical areas; rare in temperate areas. Separate pelvic fins, or fused to various extents. Mouth never subterminal. Cycloid or ctenoid scales. Dorsal fin 2-8 flexible spines. Vertebrae 25-28. Branchiostegal rays 6. Maximum length about 60 cm (reported for Dormitator maculatus)
Etymology: Greek, eleotris = the name of a Nile fish

10.2. Information on the genus *Oxyeleotris* and its synonyms

After Eschmeyer March 2003 (Ref. 46206)

Gigantogobius Status: synonym Gender: masculine
Fowler, 1905, p. 511, CAS Ref: 1370
Type by original designation (also monotypic).
Type species : *Gigantogobius jordani* Fowler, 1905
Current genus : *Oxyeleotris*

Oxyeleotris Status: valid Gender: feminine
Bleeker, 1874, p. 302, CAS Ref: 437
Type by original designation (also monotypic).
Type species : *Eleotris marmorata* Bleeker, 1852
Current genus : *Oxyeleotris*

10.3. General information on *Oxyeleotris marmorata*

Classification
Class : Actinopterygii (Ray-finned fishes) MainRef. 007050
Order : Perciformes
Family : Eleotridae (Sleepers)
Species : Oxyeleotris marmorata
Author : (Bleeker, 1852) Date Eschmeyer, pers. comm.

Environment
Freshwater : Yes Habitat : Demersal
Brackish : Yes
Saltwater : No Depth range : 10

Importance
Importance to fisheries : Commercial Ref. 006459
Other methods : ☑ Seines ☑ Gillnets O Castnets O Traps O Spears
☑ Trawls O Dredges O Liftnets O Hooks+Lines O Other

Used for aquaculture	: Commercial	Ref. 012108
Used as bait	: Never/rarely	
Aquarium fish	: Commercial based mainly on capture	Ref. 001672
Game fish	: No	
Dangerous fish	: Harmless	
Electrobiology	: No special ability	

Size and age

Longevity (y) (captive)	:	20.42	Ref. 000273
Maximum length (cm) (male/unsexed)	:	65SL	Ref. 043281
Common length (cm) (male/unsexed)	:	30TL	Ref.012693

Remarks:

Found in rivers, swamps, reservoirs and canals. Enters flooded forest (Ref. 9497). Feeds on small fishes, shrimps, aquatic insects, mollusks and crabs (Ref. 6459). Considered a delicacy over much of eastern Asia. Exported fishes command a high price (Ref. 12693). Maybe the largest species of the goby-like fishes.

10.4. Synonyms, misidentifications, etc. used for *Oxyeleotris marmorata*

Synonym	Author	Status	Ref.
Gigantogobius jordani	Fowler, 1905	questionable	003178
Oxyeleotris marmorata	Bleeker, 1852	new combination	007050
Eleotris marmorata	Bleeker, 1852	original combination	003178
Oxyeleotris marmoratus	Bleeker, 1852	misspelling	007050
Bostrichthys marmoratus	Bleeker, 1852	new combination	005193
Callieleotris platycephalus	Fowler, 1934	junior synonym	003178

10.5. Common names for *Oxyeleotris marmorata*

Name	Language	Country	Ref.
Trey Damrei	Khmer	Cambodia	003902
Trey Damrey	Khmer	Cambodia	012693
Bakutut	Malay	Indonesia	006107
Ikan bakut	Malay	Indonesia	009217
Ikan belutu	Malay	Indonesia	009217
Pa boo	Laotian	Lao People's Dem. Rep.	009497
Pa bou	Laotian	Lao People's Dem. Rep.	037767
Goby	English	Malaysia	004789
Belantuk	Malay	Malaysia	009217
Soon hock	Cantonese	Singapore	009222
Marble goby	English	Singapore	009217
Marble sleeper	English	Singapore	009217
Marble goby	English	Taiwan	040297
Pla boo jak	Thai	Thailand	042982
Pla boo sai	Thai	Thailand	042982
Marble goby	English	United Kingdom	003691
Marbled sleeper	English	United Kingdom	012693
Cá Bong Cá	Vietnamese	Viet Nam	003178
Bong tuong	Vietnamese	Viet Nam	036625

10.6. Distribution of *Oxyeleotris marmorata*

Asia: Mekong and Chao Phraya Basins, Malay Peninsula, Indochina, Philippines and Indonesia. Record from Fiji needs confirmation. MainRef.: 043281
Latitudinal range: 23° N - 18° S Temperature range: 22 - 28 °C Ref.: 13371
Status of threat: NL.

Country	Status	Ref.
Brunei Darussalam	**native**	**007050**
Cambodia	**native**	**012693**

Occurs in the Mekong Basin. Often marketed fresh in Northern Cambodia, less commonly so near Phnom Penh (Ref. 12693). Known in Tonlé Sap, Stung O Krien, Kirikum, Stung Sen (Ref. 36654) and Great Lake (Ref. 33813). Occurs in sluggish and still standing waters (Ref. 36686). Also Ref. 3902, 36662, 37772.

Fiji Islands	**questionable**	**003178**

Occurrence uncertain (Ref.43281).

Indonesia	**native**	**007050**

Recorded from Sumatra, Kalimantan, Sulawesi, and Moluccas (Ref. 7050). Also Ref. 3178, 36654, 43281.

Lao People's Dem. Rep.	**native**	**043281**

Known from the Mekong Basin. Occurs in the Khone Falls (Ref. 37772). Found in Ban Hang Khone, a village on an island in the middle of the mainstream Mekong River just below the Great Khone Waterfalls in Khong District, Champasak Province (Ref. 37767). Enters flooded forest on Don Khone, just below the great waterfalls (Ref. 9497). Also Ref. 7050, 30857.

Malaysia	**native**	**004789**
Philippines	**native**	**000280**

Reported from Laguna de Bay; rivers in Balabac, Tawi Tawi and Mindanao (Ref.280). Also Ref. 12157.

Singapore	**native**	**003178**
Taiwan	**introduced**	**005193**

Introduced from Cambodia in 1975. First successful larviculture in Taiwan occurred in 1973 (Ref. 40297). Also Ref. 47843.

Thailand	**native**	**026336**

Known from the Mekong, Chao Phraya, Maeklong, Peninsular and Southeast Thailand river systems (Ref. 26336). Also Ref. 3178, 6459, 7306, 36654, 43281.

Viet Nam	**native**	**036625**

Found in Mekong Delta (Ref. 36625).

10.7. Introductions of *Oxyeleotris marmorata*

Asia: Mekong and Chao Phraya Basins, Malay Peninsula, Indochina, Philippines and Indonesia. Record from Fiji needs confirmation.

Year	: 1975	Established: unknown	Ref.005193
Introduced	: to Taiwan from Cambodia		
Reason	: aquaculture		
Comments	: Total = 01	Established: yes = 0	probably yes = 0

10.8. Summary information (no. of records) available for *Oxyeleotris marmorata*

Level: species in general **StockCode: 043281** **MainRef. 043281**
Asia: Mekong and Chao Phraya Basins, Malay Peninsula, Indochina, Philippines and Indonesia. Record from Fiji needs confirmation.

Ecology	1	Max. sizes	2	Strains	0
Food items	5	FAO catches	15502	Diseases	1
Food consumption	0	Genetics	2	Ciguatera	0
Diet composition	1	Allele frequency	0	Ecotoxicology	0
Ration	0	Heritability	0	Metabolism	0
Predators	0	Reproduction	0	Gill area	0
Morphology	1	Spawning	2	Swimming type	0
Processing	0	Eggs	0	Swimming speed	0
Growth/mortality	0	Egg dev't.	0	Vision	0
Maturity	0	Larvae	0	Brains	0
Recruitment	0	Larval dynamics	0	Introductions	1
L/W relat.	1	Aquaculture	0	Occurrence	92

10.9. Morphology of *Oxyeleotris marmorata*

Level: species in general **StockCode: 005633** **Main Ref. 004792**

Diagnostic Characters
With 60-65 predorsal scales without ocellus on caudal peduncle (Ref. 43281).

Descriptive Characters
Striking features : none
Body shape lateral : elongated Dorsal head profile: more or less straight
Operculum present : yes
Type of eyes : more or less normal
Position/type of mouth : terminal more or less normal

Teeth Presence
lower jaw : present
upper jaw : present

Pigmentation on trunk and tail
Horizontal stripes : absent
Vertical stripes : absent
Diagonal stripes : absent
Curved stripes : absent
Spots : more than one spot dorsal and ventral on trunk and tail
Dorsal fin (D1) : more than one spot or stripe no colored margin
Caudal fin : more than one spot or stripe no colored margin
Anal fin (A1) : more than one spot or stripe no colored margin

Meristic Characters
Lateral lines: interrupted: no
Scales on lateral line: 80-90
Barbels 0
Gill rakers on lower limb total : 12- 12
Dorsal fins
Dorsal attributes : no striking attributes
Number of fins : - spines total : 77- soft-rays total : 99
Adipose fin : absent finlets dorsal: 0-0 finlets ventral : 0-0
Caudal fin
Shape of fin : more or less truncate
Attributes : more or less normal
Anal fin
Number of fins : spines total : -11 soft-rays total : 88
Paired fins

Pectoral attributes : more or less normal
Pelvics attributes : more or less normal
position : abdominal before origin of D1
Body proportions
(Based on picture)

10.10. Genetic information for *Oxyeleotris marmorata*

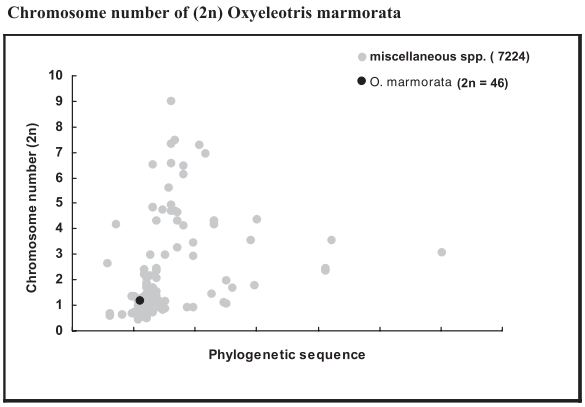
Main Ref.: 009219

Locality : Unspecified
Chromosome number (haploid) : 23
Chromosome number (diploid) : 46 Ref.: 008939
Genetic marker(s) present : No
Chromosome arm no. : 50

Remarks: *AN = 50 (Ref. 8973). No heteromorphic pairs could be referred to as sex chromosomes. Also Ref. 9217 and 9218.*

MainRef: 030184

Locality : Thailand
Chromosome number (haploid) : 23 Ref.: 030145
Chromosome number (diploid) : 46 Ref.: 030145
Genetic marker(s) present : No
Chromosome arm no. : 50 Ref: 030145



10.11. FAO aquaculture production data for *Oxyeleotris marmorata*

Country (Area)		1984 1991 1998	1985 1992 1999	1986 1993 2000	1987 1994 2001	1988 1995	1989 1996	1990 1997
Malaysia (4)	(t)	0	0	0	0	0	72	419
	(US$'000)	0	0	0	0	0	265	2,330
	(t)	14	115	37	25	33	26	39
	(US$'000)	126	1,023	305	231	336	342	535
	(t)	125	203	180	129			
	(US$'000)	1,077	1,888	1,669	1,360			

Singapore (4)	(t)	0	0	0	0	0	0	0
	(US$'000)	0	0	0	0	0	0	0
	(t)	0	0	0	0	0	0	0
	(US$'000)	0	0	0	0	0	0	0
	(t)	0	46	70	12			
	(US$'000)	0	679	934	161			
Thailand (4)	(t)	281	817	836	162	616	494	550
	(US$'000)	1,193	3,347	3,347	611	2,055	2,222	3,347
	(t)	350	39	22	24	67	125	125
	(US$'000)	2,195	339	183	201	469	838	701
	(t)	46	1	5	1			
	(US$'000)	88	4	19	4			
	(mt)	281	817	836	162	616	566	969
Total: 3	(US$'000)	1,193	3,347	3,087	611	2,056	2,487	5,665
	(mt)	364	154	59	49	100	151	164
	(US$'000)	2,320	1,362	488	431	805	1,179	1,237
	(mt)	171	250	255	142			
	(US$'000)	1,165	2,571	2,623	1,525			

10.12. General information on the reproduction of *Oxyeleotris marmorata*

Spawning Information for *Oxyeleotris marmorata*

Locality : Thailand, aquaculture ponds **Stockcode: 005633** **Main Ref.: 009223**

Season (% of mature females; 111= presence of mature females):

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
111	111	111	111	111	111	111	111	111	111		

Tem.: 28-35° C

Fecundity: min 2,000 (n)
max 30,000 (n)

Comment: 3.3-4.4 nests/female/year. Absence of spawning in Nov. -Dec. may have been due to low water temperature below 24°C.

Locality : Thailand **Stockcode: 005633** **Main Ref.: 006459**

Season (% of mature females; 111= presence of mature females):

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
111	111	111	111	111	111	111	111	111	111		

Tem.: 28-° C

Fecundity: min 10,000 (n) Female size: (g) 15.000(cm) Ref. 006459
max 90,000 (n) (g) 36.000(cm)

Comment: Eggs hatch out within 16-30 hours at 20° - 30° C.

10.13. Ecology of *Oxyeleotris marmorata*

Level : species in general **StockCode: 005633, 005376** **Main Ref.: 009497**

Habitats Ref: 013497

Streams: Yes	Lakes : Yes	Caves: No	Estuaries/lagoons/brackish seas: No
Intertidal: No	Soft: No	Rocky: No	Mangroves/marshes/swamps: No
Marine: No	Oceanic: No	Neritic: No	Coral reefs: No Tropical soft bottom: No
Hard bottom: No	Seagrass beds: No		Macrophyte : No

Feeding

Feeding Type : mainly animals (troph. 2.8 and up) Ref. 009497
Feeding Habit : hunting macrofauna (predator) Ref.: 009497

Trophic level(s) :	Original sample		Unfished population		Remark	
Estimation method	Troph	s.e	Troph	s.e		
From diet composition	4.1	0.67	4.1	0.67	Troph of recruits/juv.	Ref.: 013497
From indiv. food items	3.9	0.67	-	-	Troph level estimate	

10.14. Food items for *Oxyeleotris marmorata*

Level : species in general **StockCode : 005633**

Food item			Ref.
nekton			
finfish	bony fish	unidentified	009497
zoobenthos			
benth. crust.	crabs	unidentified	009497
	shrimps/prawns	unidentified	009497
insects	insects	unidentified aquatic	006459
mollusks	n.a./other mollusks	unidentified	006459

10.15. Maximum weight/length/age of *Oxyeleotris marmorata*

Locality : Indonesia, Cirata Reservoir, Cianjur, West Java **StockCode: 005633**
Max weight (g) : 102.19 total weight Ref. : 009217
Max length (cm): 19.47 TL Same specimen for WL: Yes Sex : unsexed
Same specimen for LT : Yes

Locality : Indonesia, Parung Ponds, Bogor, West Java **StockCode : 005633**
Max weight (g) : 204.5 total weight Ref. : 009217
Max length (cm): 23.69 TL Same specimen for WL: Yes Sex : unsexed
Same specimen for LT : Yes

10.16. Length-Weight relationships of *Oxyeleotris marmorata*

(W = a * L^b with Length in cm and Weight in g)

StockCode: 005633
Length range : 19.47 - 23.69 TL Sample size: Main Ref.: 009217
a : 0.0146
Correlation coefficient : b : 3
Sex: unsexed
Comment: Estimated using data in Ref.

10.17. Diseases reported for *Oxyeleotris marmorata*

StockCode: 005633 **MainRef. : 048850**
Bacterial diseases, Edwardsiellosis Ref.: 000193
Emphysematous Putrefactive Disease of Catfish (EPDC): *Edwardsiella septicaemia*
Causative agent : *Edwardsiella tarda*
Occurrence : Not specified, 1988

O eggs	O fry	O females	☑ in the wild
O larvae	O juveniles	O males	☑ in culture

Remarks: *The disease was reported by Supamataya (1998).*

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Acknowledgments

The persons acknowledged below provided, entered or checked information on at least one of the species detailed in this document

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About IFReDI

The Inland Fisheries Research and Development Institute (IFReDI) was established in October 2002 by virtue of Declaration No. 357 of the MInistry of Agruculture, Forestry and Fisheries as a research and development institute under the supervision of the Department of Fisheries (DoF).

Vision

Sustainable development of Cambodia's inland aquatic resources for the country's food, security, and economic prosperity.

Mission

To provide scientific information and technical support for the sustainable development and management of inland living aqaatic resources in Cambodia, based on biological and socioeconomic research.

Goals

- Scientific research collection, analysis and dissemination of biological and socioeconomic data;
- Development and upgrading of national capacity for the rational management of inland fisheries;
- Maximization of the income of fishermen and farmers;
- Sustainable utilization of the fishery resources.

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BIOLOGICAL REVIEWS OF IMPORTANT CAMBODIAN FISH SPECIES, BASED ON FISHBASE 2004.

Volume 2: *Pangasius larnaudii; Clarias batrachus; Cirrhinus microlepis; Leptobarbus hoevenii; Thynnichthys thynnoides; Trichogaster microlepis; Trichogaster pectoralis; Anabas testudineus; Boesemania microlepis; Oxyeleotris marmorata.*

This document is a review of all the information published worldwide about ten fish species that contribute significantly to Cambodian fishery resources.

Catfishes	*Pangasius larnaudii;*
	Clarias batrachus;
Cyprinids	*Cirrhinus microlepis;*
	Leptobarbus hoevenii;
	Thynnichthys thynnoides;
Gouramis	*Trichogaster microlepis;*
	Trichogaster pectoralis;
Perch	*Anabas testudineus;*
Croaker	*Boesemania microlepis;*
Goby	*Oxyeleotris marmorata.*

These ten reviews result from the extraction and the editing by the authors of the information available in FishBase 2004, a biological database on fishes developed by the WorldFish Center in collaboration with the FAO. www.fishbase.org

In each review summary information is given on the family, the genus and the species. For each species are detailed synonyms, common names and misidentifications; morphology; maximum weight/length/age; distribution and ecology. Whenever available, introductions, diseases and FAO production data are also detailed as well as the biological features of the species (length-weight relationships, growth and mortality, diet, reproduction, genetic information). Each review is concluded by a comprehensive list of bibliographic references.

ISBN 99950-71-00-2

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