

Epinephelus bleekeri

Duskytail Grouper

by [Randall, J.E.](#)

Taxonomy

KINGDOM

Animalia

PHYLUM

Chordata

CLASS

Actinopterygii

ORDER

Perciformes

FAMILY

Epinephelidae

GENUS

Epinephelus

▼ Taxonomy in detail

SCIENTIFIC NAME

Epinephelus bleekeri

AUTHORITY

(Vaillant, 1878)

SYNONYMS

***Epinephelus bleekeri* Valliant, 1878**
***Serranus coromandelicus* Day, 1878**
***Serranus variolosus* (non Valenciennes, 1828)**
***Epinephelus dayi* (non Bleeker, 1873)**
***Serranus waandersi* (non Bleeker, 1858)**

COMMON NAMES

English
Duskytail Grouper, Bleeker's Grouper, Bleeker's Rock Cod

French
Merou Demi-deuil, Merou Demideuil

Spanish; Castilian
Mero Medioluto

Arabic
Semman Lidden, Siman

A. Environment/Ecology:

Marine; demersal; depth range 30 - 105 m (Ref. [89707](#)). Tropical; 32°N - 17°S, 48°E - 136°E (Ref. [5222](#))

B. Distribution:



Indo-West Pacific: Persian Gulf to Taiwan, Indonesia and the northern coast of Australia. Not known from Japan, but may occur here. It has not been found at any islands of Micronesia nor Polynesia.

C. Length at first maturity / Size / Weight / Age:

Maturity: L_m [36.0](#), range 42 - ? cm Max length : 76.0 cm TL male/unsexed; (Ref. [2852](#))

D. Short description

[Dorsal spines](#) (total): 11; [Dorsal soft rays](#) (total): 16-18; [Anal spines](#): 3; [Anal soft rays](#): 8 - 9. Recognized by the bluish lower half of the caudal fin and the lack of spots there compared to the upper half (Ref. [48635](#)); characterized further by: generally brown color; head, body and fins with red to dark brown spots; body scales ctenoid, except cycloid scales on nape, thorax and ventrally on abdomen; body with auxiliary scales; elongate body, greatest depth 3.0-3.5 in SL; truncate to slightly rounded caudal fin; short pelvic fins, 1.9-2.4 in head length (Ref. [90102](#)); head length 2.4-2.7 times in standard length; interorbital area flat to slightly convex; preopercle angle with 2-9 enlarged serrae, adults with a notch above angle; straight upper edge of operculum; scaly maxilla, reaching to or beyond vertical at rear edge of eye; 2 rows of subequal teeth on midlateral part of lower jaw (Ref. [089707](#)).

E. Biology

Occur on shallow banks, but is not known from well-developed coral reefs (Ref. [27253](#)) and adjacent soft substrate in depths of 30-105 m (Ref. [089707](#)). Also found in silty coastal reefs and estuaries. Solitary (Ref 90102). Benthic (Ref. [75154](#)). In Hong Kong live fish markets (Ref. [27253](#)). Usually taken by trawling in 30-45 m or by hand-lining over rocky banks; not found from coral reefs (Ref. [11441](#)).

F. Life cycle and mating behavior

G. Fisheries

H. IUCN Red List Status

- **Geographic Range**

NUMBER OF LOCATIONS

UPPER DEPTH LIMIT : 3 metres

LOWER DEPTH LIMIT : 104 metres

RANGE DESCRIPTION

This species is distributed in the Indo-West Pacific from the Persian Gulf to Taiwan, Indonesia and northern Australia (southwest to Shark Bay, Western Australia). It also occurs in the Solomon Islands (K. Rhodes pers. comm. 2016). It is not yet confirmed from Japan, but may occur there. Its distribution does not include the islands of Micronesia or Polynesia (Heemstra and Randall 1993). Its depth range is three to 104 metres.

Specific localities:

Australia (Northern Territory, Western Australia), Bahrain, Brunei Darussalam, Cambodia, China (Fujian, Guangdong), Hong Kong, India (Andhra Pradesh, Karaikal, Kerala, Mahé, Pondicherry, Tamil Nadu, Yanam), Indonesia (Java, Kalimantan, Moluccas, Sulawesi, Sumatra), Iraq, Iran, Kuwait, Malaysia (Peninsular Malaysia, Sabah, Sarawak), Oman, Pakistan, Philippines, Qatar, Saudi Arabia, Singapore, Sri Lanka, Taiwan, Thailand, United Arab Emirates, and Viet Nam.

- **Population**

CURRENT POPULATION TREND : DECREASING

POPULATION SEVERELY FRAGMENTED : NO

DESCRIPTION

This species is widespread, but apparently no longer abundant in large parts of its range. There is evidence for recent declines in Malaysia and serious declines have potentially occurred in the South China Sea. Population decline may be occurring at the global level, especially due to pressure to supply the Live Reef Fish Food trade, but quantitative data are lacking in a large portion of its range.

Indonesia: This species was not observed during underwater surveys conducted in Indonesia from 2004 to 2011 (S. Suharti pers. comm. 2016). It comprises part of the deepwater fishery, and of 336 observed individuals, 2% were immature and 74% were mega spawners. Overall, at least 90% of individuals for sale in Indonesia were mature, and the spawning potential ratio was nearly 100%. Based on this, the population is not overexploited and is considered stable as of 2014 to 2016 (Mous and Pet 2016).

Malaysia: Wild-caught immature individuals of this species are utilized by the mariculture industry in Malaysia, specifically in Kg Teruakan, Nr. P. Sakar, Lahad Datu, Sabah (Daw 2004).

- **Habitat and Ecology**

System : Marine

Habitat type : Marine Neritic

Generation length : 8 years

HABITAT AND ECOLOGY DETAIL

This demersal species inhabits mostly shallow coral and rocky banks, can be associated with non-reefal and turbid habitat, and is not known from well-developed coral reefs (Randall 1995). Juveniles can be commonly taken in estuaries. Its maximum total length is 76 cm (Chan 1968). Life history data are lacking, but due to similarities, *Epinephelus maculatus* is considered an appropriate proxy to estimate generation length. The age at first maturity for *E. maculatus* females is 2.8 years and males is 4 years and longevity is 13 years (Rhodes et al. 2016). When applying an age at first reproduction of three years and longevity of 13 years, its estimated generation length is eight years based on the following equation recommended by the IUCN Red List methods: Age at first reproduction + (Age at last reproduction – age at first reproduction)/2.

- **THREATS**

- **Biological resource use**

- Fishing & harvesting aquatic resources

THREATS DETAIL

Overfishing is a major threat to this species.

- **Use and Trade**

This species is of minor commercial importance to fisheries, and comprises a portion of deepwater fisheries within its range. It is a commercially valuable species in the Persian Gulf and Oman Sea (Valinassab et al. 2006). It is an excellent food fish and collected using hook and line, longlines and trawls (Heemstra and Randall 1993). It is sold in the Live Reef Food Fish Trade in Hong Kong (Donaldson et al. 2003) and the Philippines (Pratt et al. 2000, Padilla et al. 2003). Wild caught juveniles/fingerlings are also utilized for aquaculture (grow-out in sea cages and pens) in the live fish market in Hong Kong (Lee and Sadovy 1998, Donaldson et al. 2003). Thailand and Malaysia are important sources for so-called "cultured" (i.e., wild-captured juveniles) species and *Epinephelus bleekeri* is amongst the 12 most commonly available species imported to Hong Kong (<http://www.traffic.org/reef-fish/executivesummary.html>). Juveniles are also commonly taken in estuaries in the Philippines (Pratt et al. 2000, Padilla et al. 2003) and Thailand (Vidthayanon and Premcharoen 2002), Malaysia, southern China, Vietnam (Tuan 2003) and Indonesia. Seine net, scoop net and push net are mainly used for collecting small fish of 1 to 3 cm (Tuan and Hambrey 2000). Fingerlings are either locally grown out or sold to Taiwan or Hong Kong (Sadovy 2000). It is less frequently cultured in Hong Kong as of 2002/2003 due to disease problems (Shek 2003). It also occurs as bycatch in several Persian Gulf commercial fisheries (Raeisi et al. 2011, Hosseini et al. 2012, Paighambari and Daliri 2012, Chen et al. 2013), commercial trawl fisheries in India (James et al. 1996) and the trap fishery of Western Australia (Moran et al. 1988).

- **Conservation Action**

- **In-place land/water protection**

- Occurs in at least one protected area : Yes

CONSERVATION ACTIONS DETAIL

There are no species-specific conservation measures. It occurs in some marine protected areas that overlap its range.

I. More Information:

1) Stocks

This species is widespread, but apparently no longer abundant in large parts of its range. There is evidence for recent declines in Malaysia and serious declines have potentially occurred in the South China Sea. Population decline may be occurring at the global level, especially due to pressure to supply the Live Reef Fish Food trade, but quantitative data are lacking in a large portion of its range.

- Persian Gulf: This species was regionally listed as Near Threatened in the Persian Gulf based on declines in catch and abundance of large epinephelids over the past 10 years. *Epinephelus bleekeri* is similar in size and habitat to *Epinephelus coioides*, which is heavily targeted species in the Persian Gulf, but it does not occur in the fisheries statistics collected in Abu Dhabi (Grandcourt et al. 2011). It comprises a relatively small proportion of bycatch in the Iranian shrimp trawl fishery (0.02-0.07%; Paighambari and Daliri 2012), the Iranian cutlassfish trawl fishery (less than 0.1%; Raeisi et al. 2011) and the Kuwaiti shrimp fishery (Chen et al. 2013). During a trawl survey conducted in 2003-2004 in the Oman Sea and Persian Gulf, this comprised between 0.05 to 0.12% of the biomass (Valinassab et al. 2006). Fishing effort is likely to increase in the next 10-15 years in the Persian Gulf.
- China: An underwater survey conducted in Daya Bay, south China in 2015 did not record this species (average survey effort was 21.2 man-hours; To and Shea 2016). Trawl surveys conducted in the South China Sea reported that the density of this species was 3.5 kg/km² in 1964/1965 and 1.49 kg/km² in 2002 to 2004 (Chen 2009), but no data between these years are available to estimate or detect a trend.
- Hong Kong: This species was “moderately abundant” during underwater reef fish surveys in Hong Kong conducted from 1995 to 1999 (Sadovy and Cornish 2000). This species was recorded in 6% of the underwater surveys conducted from 2014 to 2016 in Hong Kong coral and rocky reefs and the density index was 1.55 out of 4 (Shea and Ho 2016). It was the fourth most abundant species observed during a wet market survey of wild-caught grouper in Hong Kong during 2004 to 2006, and nearly all were immature (To and Sadovy de Mitcheson 2009). A wet market survey conducted in 2012/2013 reported it to rank 12th by abundance (i.e., 2.4%) among all groupers that were both locally caught and imported, and almost all were immature (S. Lam unpublished data). In Hong Kong, most medium-bodied grouper species have declined. According to mariculturists in Hong Kong, the supply of wild-caught fingerlings/juveniles for grow-out has declined presumably due to overfishing. In southern China, fingerlings are near extirpated (Sadovy 2000), which suggests a decline in the adult source populations has occurred throughout Southeast Asia (L. Min pers. comm. 2007). However, this could also be attributed to the switch of culturist choices after the disease outbreak in the early 2000s.
- Indonesia: This species was not observed during underwater surveys conducted in Indonesia from 2004 to 2011 (S. Suharti pers. comm. 2016). It comprises part of the deepwater fishery, and of 336 observed individuals, 2% were immature and 74% were mega spawners. Overall, at least 90% of individuals for sale in Indonesia were mature, and the spawning potential ratio was nearly 100%. Based on this, the population is not overexploited and is considered stable as of 2014 to 2016 (Mous and Pet 2016).
- Taiwan: This species is rare in Taiwan (KT Shao pers. comm. 2016).
- Malaysia: Wild-caught immature individuals of this species are utilized by the mariculture industry in Malaysia, specifically in Kg Teruakan, Nr. P. Sakar, Lahad Datu, Sabah (Daw 2004).
- Solomon Islands: A market survey conducted in Honiara in the Solomon Islands recorded that this species comprised 0.5% of grouper catch and sizes ranged between 22 and 55 cm total length (Solomon Islands Ministry of Fisheries and Marine Resources unpublished data), which suggests at least some portion of the Solomon Island catch is immature.
- India: This species comprised 3% of the grouper catches in the north Andhra region of India during 2009 to 2011, and the size typically ranged from 26 to 37 cm total length (Kandula et al. 2015), which suggests most were immature. It rarely or sporadically appeared in trawl catches in southern Kerala, India (Naomi et al. 2011).

Current Population Trend: Decreasing

2) Ecology

This demersal species inhabits mostly shallow coral and rocky banks, can be associated with non-reefal and turbid habitat, and is not known from well-developed coral reefs (Randall 1995). Juveniles can be commonly taken in estuaries. Its maximum total length is 76 cm (Chan 1968). Life history data are lacking, but due to similarities, *Epinephelus maculatus* is considered an appropriate proxy to estimate generation length. The age at first maturity for *E. maculatus* females is 2.8 years and males is 4 years and longevity is 13 years (Rhodes et al. 2016). When applying an age at first reproduction of three years and longevity of 13 years, its estimated generation length is eight years based on the following equation recommended by the IUCN Red List methods: $\text{Age at first reproduction} + (\text{Age at last reproduction} - \text{age at first reproduction})/2$.

3) Diet

4) Reproduction

5) Maturity

Maturity studies for *[Epinephelus bleekeri](#)*
n = 2

Sort by <input checked="" type="radio"/> Lm <input type="radio"/> Country <input type="radio"/> Locality <input type="radio"/> tm							
Lm (cm)	Length (cm)		Age range (y)		Sex of fish	Country	Locality
	42.0	-		-	unsexed		Asia-Pacific Region
36.0 TL		-		-	unsexed	India	North Andhra Region (17°01'N-19°22'N; 83°23'E-85°14'E), Sept 2009-Oct 2011

6) Spawning

7) Spawning aggregation

8) Fecundity

Fecundity for *[Epinephelus bleekeri](#)*
Sort by Country Locality
[n = 1]

Country	Locality	Absolute Fecundity

		min	max
India	North Andhra Region (17°01'N-19°22'N; 83°23'E-85°14'E), Sept 2009-Oct 2011	156,176	440,129

9) Eggs

10) Egg development

11) Age/Size

List of Population Characteristics records for *Epinephelus bleekeri*
n = 5

Sex	Wmax	Lmax (cm)	Tmax (y)	Country	Locality
unsexed		65	24	Kuwait	Kuwait
unsexed		70		Iran	Persian Gulf and Oman Sea
unsexed		76			Asia-Pacific Region
unsexed		76		Global	East Indies
unsexed		76		Hong Kong	Not specified

12) Growth

13) Length-weight

Length-Weight Parameters for *Epinephelus bleekeri*

[Length-weight \(log a vs b\) graph](#) [n=3] [Hide graph](#)

Sort by a b Country Locality

Score	a	b	Sex	Length (cm)	Length type	r ²	n	Country	Locality
0.60	0.01830	2.891	unsexed				223	Kuwait	
0.91	0.02550	3.112	mixed	13.8 - 53.8	TL	0.909	61	India	Visakhapatnam, Andhra Pradesh / 2009-2011

0.98	0.00889	3.126 unsexed	14.2 - 26.9	TL	0.976	11	Thailand	Rayong and Phetchaburi, Gulf of Thailand, 1988
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14) Length-length

Length-length Parameters for <i>Epinephelus bleekeri</i> [n=4]						
Unknown length	a	b	Known length	r	Length range (cm)	Sex of fish
SL	-0.928	0.836	TL	0.999826	18.6 - 55.3	unsexed
TL	0.000	1.000	FL		-	unsexed
TL	0.000	1.237	SL		-	unsexed
TL	0.000	1.268	SL		-	unsexed

15) Length-frequencies

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16) Morphometrics

Morphometric Data for <i>Epinephelus bleekeri</i> n = 4				
Picture Name	Length		Lifestage	Aspect ratio
Epble_u0.gif	19.3	SL	unsexed	1.43
Epble_u0.jpg	14.8	SL	unsexed	1.36
Epble_u1.jpg	29.7	SL	unsexed	1.19
Epble_u2.jpg	33.7	SL	unsexed	1.21

Picture Used	EPBLE_U0.GIF
Size (cm)	19.3 SL
Sex	unsexed
Total length (TL)	589 pixels
Standard length	80.8 % TL
Fork length	100.0 % TL
Pre-anal length	52.6 % TL
Pre-dorsal length	27.2 % TL
Pre-pelvic length	27.5 % TL
Pre-pectoral length	23.3 % TL

Body depth	25.5 % TL
Head length (HL)	29.4 % TL
Eye diameter	16.2 % HL
Pre-orbital length	26.0 % HL
Aspect ratio of caudal fin	1.42959

Picture Used	EPBLE_U0.JPG
Size (cm)	14.8 SL, 18.6
Sex	unsexed
Locality	
Total length (TL)	591 pixels
Standard length	78.8 % TL
Fork length	100.0 % TL
Pre-anal length	52.3 % TL
Pre-dorsal length	25.4 % TL
Pre-pelvic length	30.5 % TL
Pre-pectoral length	29.6 % TL
Body depth	23.7 % TL
Head length (HL)	32.3 % TL
Eye diameter	17.3 % HL
Pre-orbital length	25.1 % HL
Aspect ratio of caudal fin	1.3618

Picture Used	Epble_u1.jpg
Size (cm)	29.7 SL, 37
Sex	unsexed
Total length (TL)	595 pixels
Standard length	85.9 % TL
Fork length	100.0 % TL
Pre-anal length	55.0 % TL
Pre-dorsal length	26.6 % TL
Pre-pelvic length	28.7 % TL
Pre-pectoral length	26.9 % TL
Body depth	25.4 % TL
Head length (HL)	30.1 % TL

Eye diameter	16.8 % HL
Pre-orbital length	22.3 % HL
Aspect ratio of caudal fin	1.18835
Picture Used	Epble_u2.jpg
Size (cm)	33.7 SL, 41.5
Sex	unsexed
Total length (TL)	597 pixels
Standard length	86.6 % TL
Fork length	99.7 % TL
Pre-anal length	57.0 % TL
Pre-dorsal length	29.5 % TL
Pre-pelvic length	31.5 % TL
Pre-pectoral length	29.1 % TL
Body depth	25.8 % TL
Head length (HL)	33.2 % TL
Eye diameter	13.6 % HL
Pre-orbital length	23.2 % HL
Aspect ratio of caudal fin	1.211

17) Morphology

Morphology Data of <i>Epinephelus bleekeri</i>	
Identification keys	
Abnormalities	
Main Ref.	Heemstra, P.C. and J.E. Randall, 1993
Descriptive characteristics of juvenile and adult	
Striking features	none
Body shape lateral	fusiform / normal
Cross section	compressed
Dorsal head profile	clearly convex
Type of eyes	more or less normal
Type of mouth/snout	more or less normal
Position of mouth	superior
Type of scales	ctenoid scales

Diagnosis	Recognized by the bluish lower half of the caudal fin and the lack of spots there compared to the upper half (Ref. 48635); characterized further by: generally brown color; head, body and fins with red to dark brown spots; body scales ctenoid, except cycloid scales on nape, thorax and ventrally on abdomen; body with auxiliary scales; elongate body, greatest depth 3.0-3.5 in SL; truncate to slightly rounded caudal fin; short pelvic fins, 1.9-2.4 in head length (Ref. 90102); head length 2.4-2.7 times in standard length; interorbital area flat to slightly convex; preopercle angle with 2-9 enlarged serrae, adults with a notch above angle; straight upper edge of operculum; scaly maxilla, reaching to or beyond vertical at rear edge of eye; 2 rows of subequal teeth on midlateral part of lower jaw (Ref. 089707).
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Meristic characteristics of *Epinephelus bleekeri*

Lateral Lines	1 Interrupted: No
Scales on lateral line	49 - 53
Scales in lateral series	99 - 104
Barbels	0
on lower limb	16 - 18
on upper limb	9 - 11
total	25 - 29

Fins

Dorsal fin(s)

Attributes	no striking attributes
Fins number	1notched No
Finlets No.	Dorsal 0 - 0
	Ventral 0 - 0
Spines total	11 - 11
Soft-rays total	16 - 18
Adipose fin	absent

Caudal fin

Attributes	more or less truncate; more or less normal
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Anal fin(s)

Fins number	1
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Spines total	3 - 3
Soft-rays total	8 - 9
Paired fins	
Pectoral	Attributes more or less normal
	Spines 0
	Soft-rays 17 - 19
Pelvics	Attributes more or less normal
	Position thoracic beneath origin of D1
	Spines
	Soft-rays

18) Larvae

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19) Recruitment

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20) Abundance

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