

Fish Indicator Guide

A field guide to identifying indicator fish species

BASIC EXTERNAL FEATURES

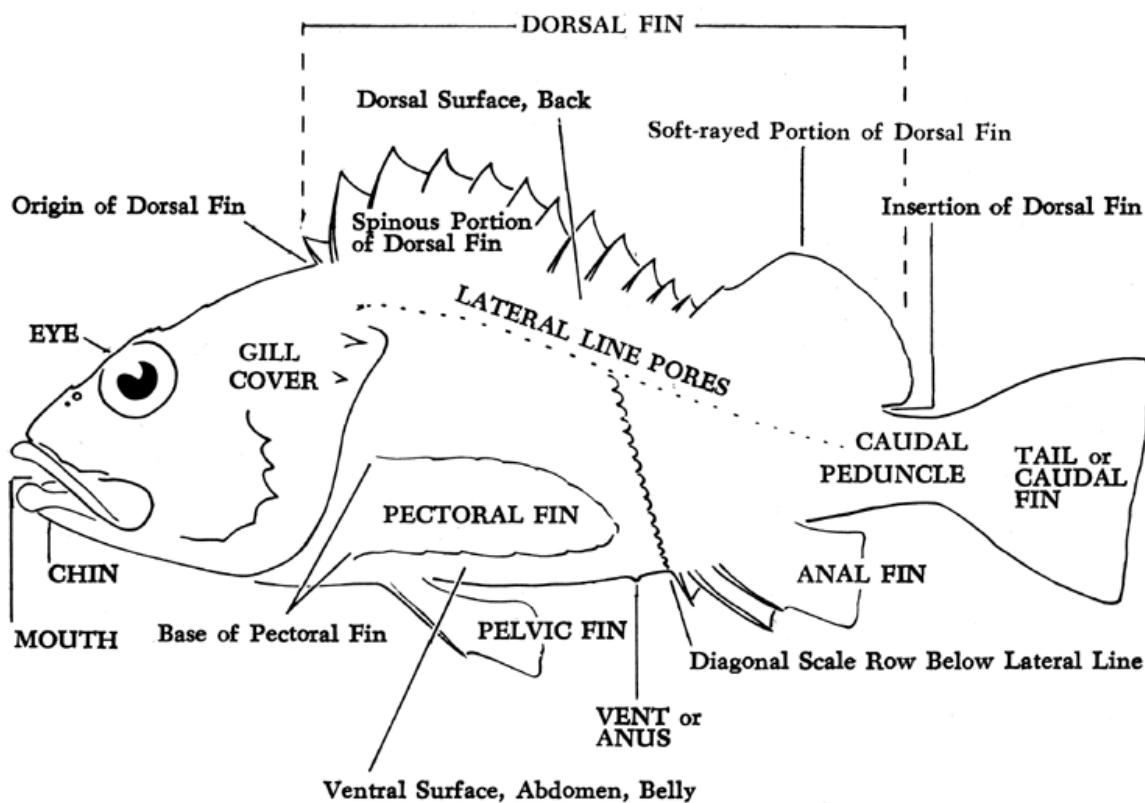
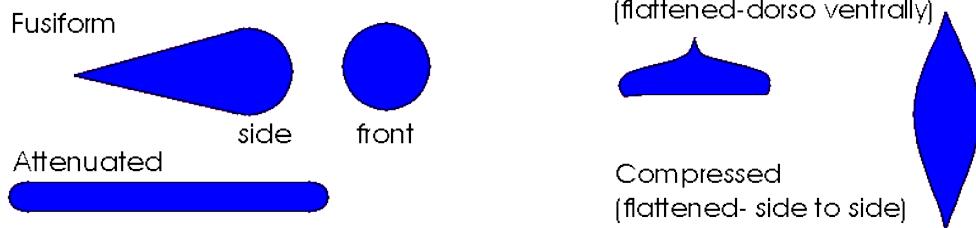


FIGURE 1. A spiny-rayed fish, *Sebastes*, naming fins and general body areas.

Key points

- Head shape and position of eyes / mouth
- Size of eyes, which may distinguish between a deep sea fish, benthic fish, or a pelagic fish
- Mouth and associated lips; pay attention to the size of lips and presence/absence of exposed teeth
- Dorsal fins; whether they are continuous or not
- Pectoral, pelvic and anal fin shape and size
- Caudal fin shape and size
- Note: Each species is indicated by a page which is refer to Reef Fish Identification: Tropical Pacific by Gerald Allen *et al.*

1. BODY SHAPES



2. DIFFERENT CAUDAL FINS



3. DI



4. DORSAL FINS



notched (spiny)



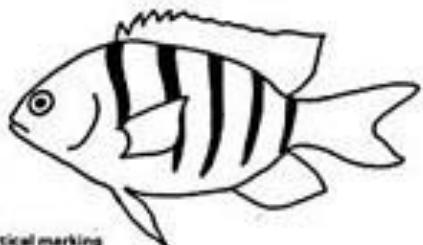
continuous



separate dorsal fins

5. MARKINGS

THE MARKINGS ON A FISH



Bar - any vertical marking



Stripe - any horizontal marking



Streak or band - a diagonal marking

STRIPE - Horizontal Marking



SPECKLES - Marked with fine spots

SPOT - Well defined circular marking

BAR - Vertical marking

Line markings radiating from eye



OCELLATED SPOT - Spot with ring of another color

BAND - Diagonal marking



LINES - Thin markings of any orientation

BLOTHCH - Poorly defined or irregular marking



Bars



Stripes



Bands



chevron



spotted or false eye



saddled



banded



spotted



blotched



painted

6. BEHAVIOUR

Swimming Behaviour

What part of the body is used to swim

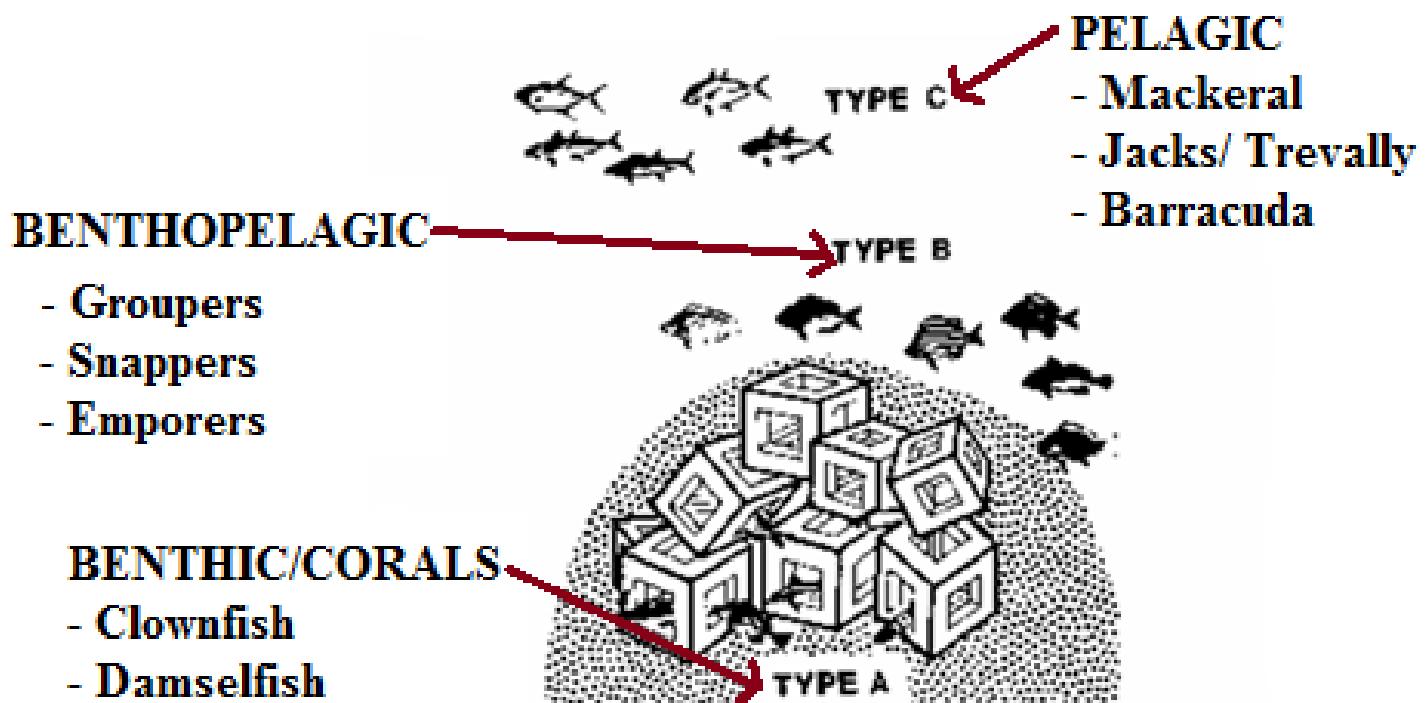
- Caudal fin (ex: Jacks, Snappers, Mackerel, Barracuda)
- Pectoral and caudal fins (ex: Emperors, Groupers [paddle with pecs])

Group size

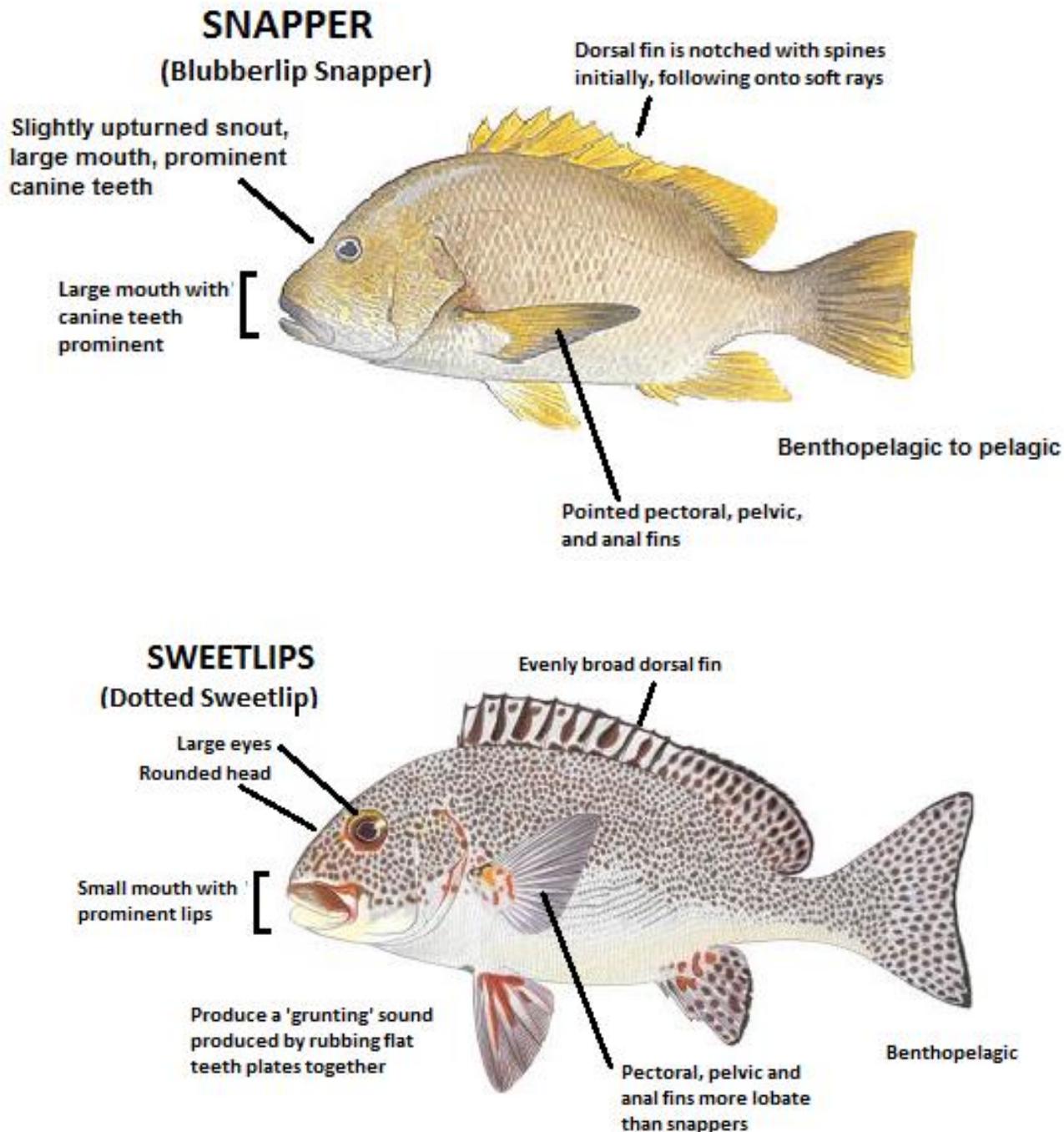
- Schooling
- Solitary fish

Position in Water Column

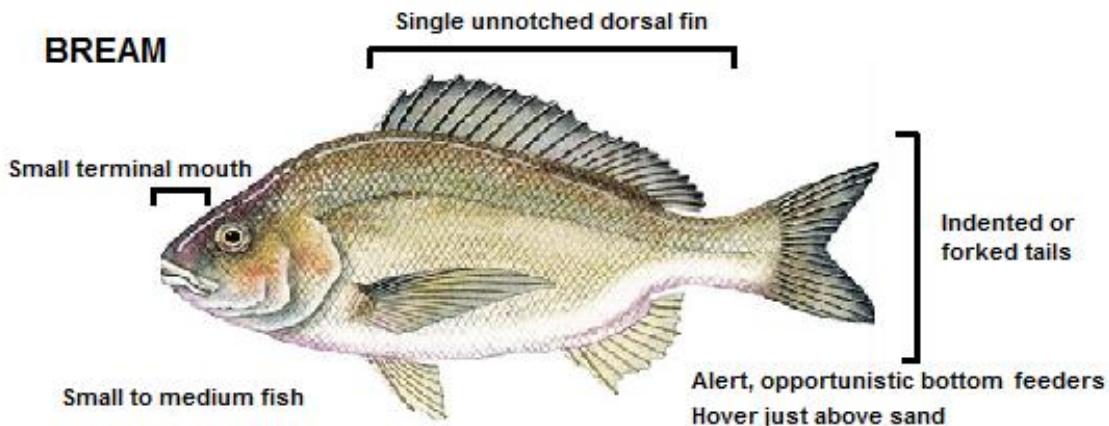
- **Benthic:** Live on the bottom/substrate (ex: Eels, Rays, Anemone Fishes)
- **Benthopelagic:** Live on top of or around the reef (ex: Snappers, Groupers, Emperors)
- **Pelagic:** Swimming at the middle/top of the water column/free water (ex: Jacks, Mackerels, Barracudas)



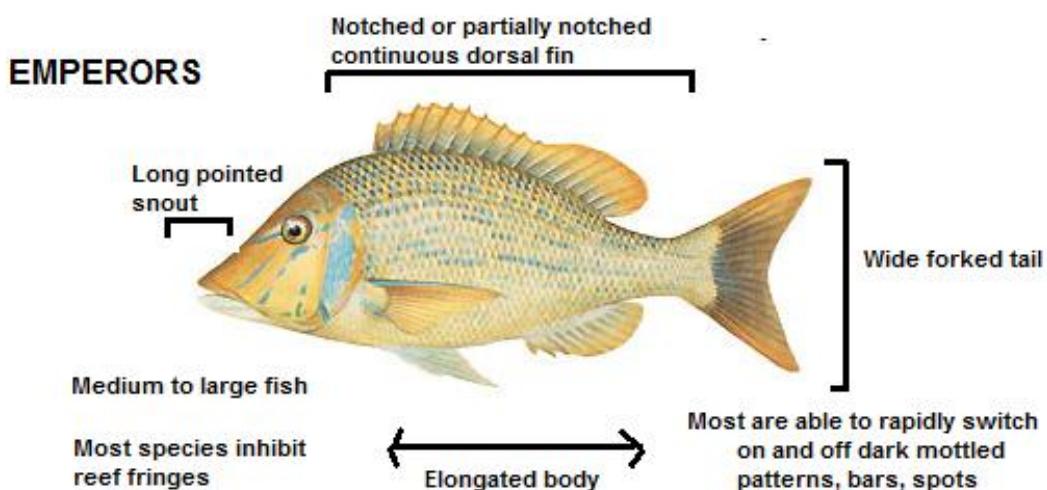
DISTINGUISHING FEATURES BETWEEN FISH FAMILIES



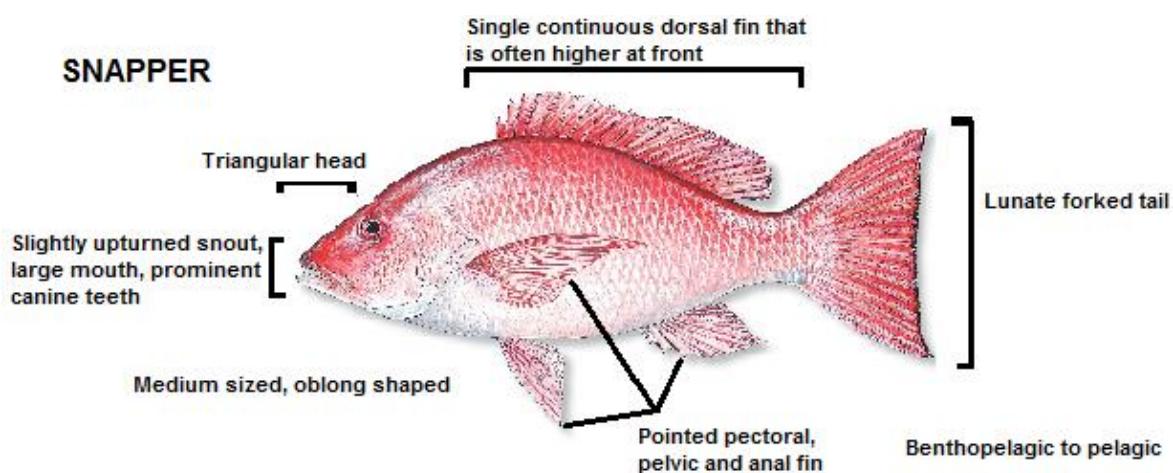
BREAM



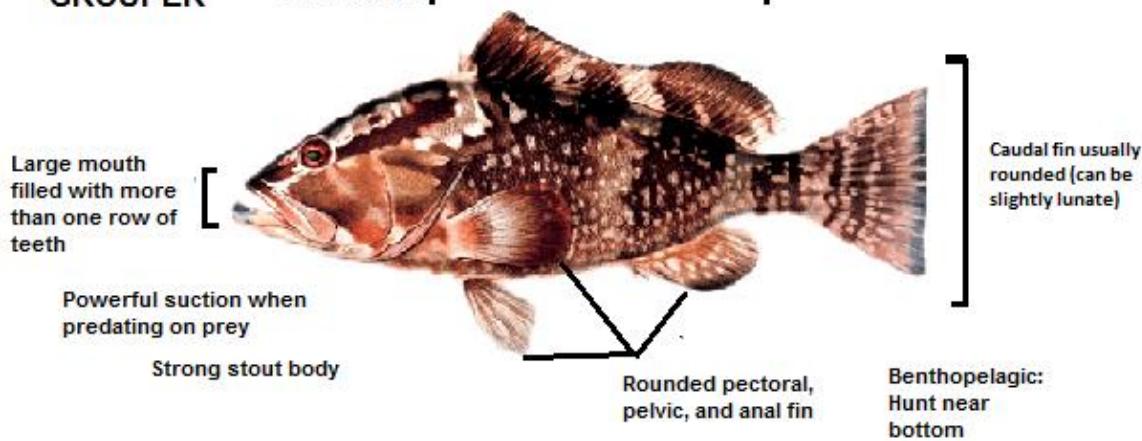
EMPERORS



SNAPPER



GROUPER



INDICATOR FISH SPECIES (COMMON SPECIES OBSERVED)

JACKS (TREVALLYS) – CARANGIDAE

Body Shape: Compressed body shape

Caudal Fin: Tall & thin Forked caudal fin

Face Shape: Terminal mouth

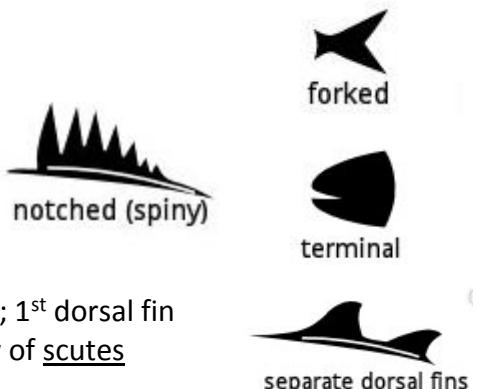
Dorsal Fin: Separate dorsal fins; Spiny 1st dorsal fin

Swimming Behaviour: Swim using caudal fin

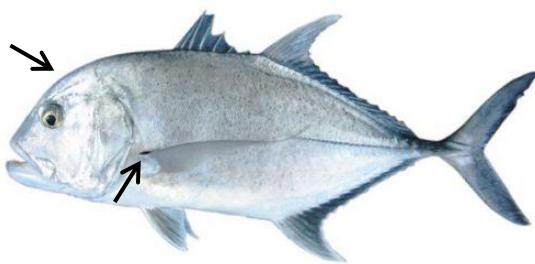
Group Size: Solitary / Form Schools

Position: Pelagic, mid-water column, move in and out of reef

Other characteristics: Extremely active swimmers; Large eyes and mouth; 1st dorsal fin usually lies flat while swimming; Curved and elongated pectoral fins; Row of scutes preceding tail



Giant Trevally - *Caranx ignobilis* (Forsskål, 1775) p. 127

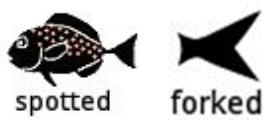
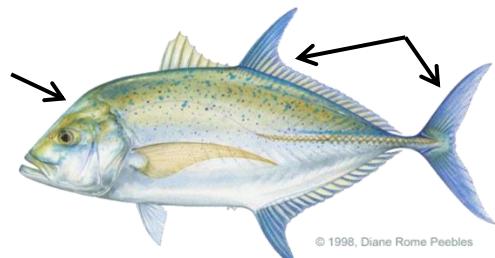


9 Mar 2015

- **Size:** Up to 170cm, commonly 100cm
- **Position:** Pelagic; coastal and oceanic
- **Group size:** Solitary or form schools
- Silvery with numerous scattered small black spots
- **Small black area on upper base of pectoral fin**
- **Steep forehead profile**



Bluefin Trevally - *Caranx melampygus* (G. Cuvier, 1833) p.126

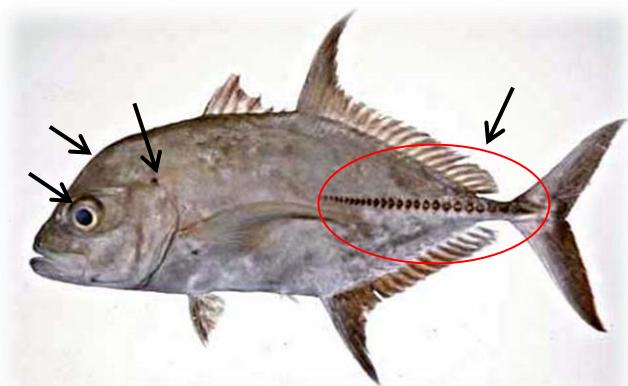


9 Mar 2015

- **Size:** Up to 100cm, commonly 60cm
- **Position:** Pelagic; coastal and oceanic
- **Group size:** Solitary or form schools
- Iridescent blue to green with dense spotting on upper body
- **Sloped forehead profile**
- **Blue fins**



Black Jack - *Caranx lugubris* (Poey, 1860) p. 126

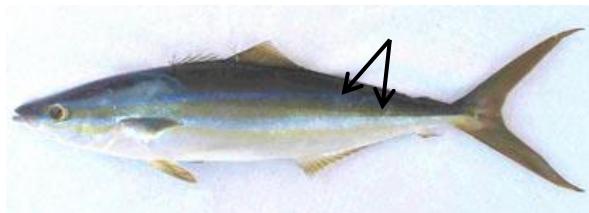


20 Aug 2012

- **Size:** Up to 70cm
- **Position:** Benthopelagic; clear oceanic waters
- **Group Size:** Solitary or form schools
- Silvery grey to brown to nearly black
- **Black scutes and black edges**
- **Black spot on upper end of gill cover**
- **Boxy head with concave slope & big eyes**



Rainbow Runner - *Elagatis bipinnulata* (Quoy & Gaimard, 1825) p.127



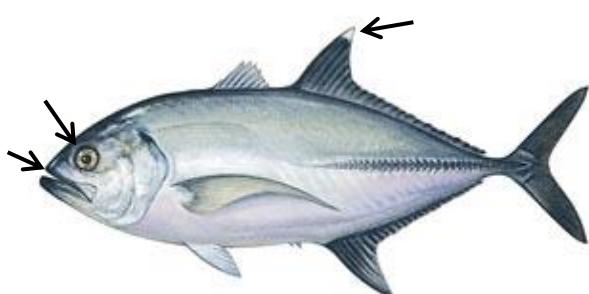
- **Size:** Up to 120cm, commonly 90cm
- **Position:** Pelagic; oceanic and coastal waters
- **Group Size:** May form large schools
- Elongated body shape
- **Two bright blue stripes with a yellow margin in the middle**, hence the 'rainbow'
- Large caudal fin



21 Aug 2012



Bigeye Trevally - *Caranx sexfasciatus* (Quoy & Gaimard, 1825) p. 126



4 Feb 2009

- **Size:** Up to 85cm
- **Position:** Pelagic; clear outer reefs
- **Group Size:** Form large schools
- Silver color – Males turn black when courting
- **Small black spot on upper end of gill cover**
- **White tip on fore lobe of rear dorsal fin**
- Relatively large eye and mouth



African Pompano – *Alectis ciliaris* (Forsskål, 1775) p. 125

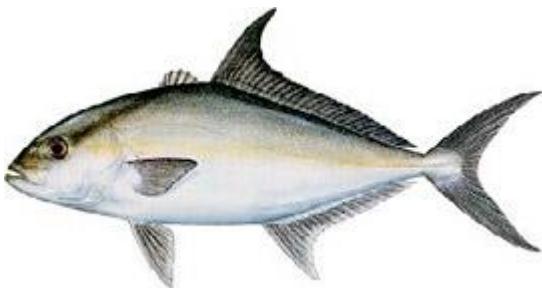


27 Mar 2009

- **Size:** Up to 130 cm, subadult up to 90 cm (see right below)
- **Position:** Pelagic; near dropoffs
- **Group Size:** young form schools, large adult solitary
- Silver, often with bluish or greenish tints
- Scales not obvious
- Subadult – front lobes of dorsal and anal fins trail long filamentous rays

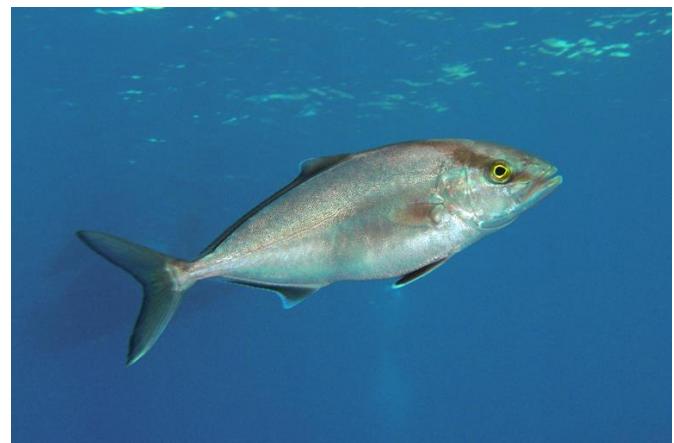


Almaco Jack – *Seriola rivoliana* (Valenciennes, 1833) p. 127



21 Aug 2012

- **Size:** Up to 120 cm,
- **Position:** Pelagic, occasionally over reefs
- **Group Size:** form schools
- Silveryark band runs from lip across eye to front of dorsal fin



Orange-Spotted Trevally – *Carangoides bajad* (Forsskål, 1775) p. 125



- **Size:** Up to 55cm
- **Position:** Pelagic; Coastal reefs and outer slopes
- **Group Size:** Solitary & form large schools
 - Brassy silver to yellow-orange
 - Orange spots on sides
 - Variation – Silver head and body with scattered orange spots



6 Mar 2015



GROUPERS – SERRANIDAE

Body Shape: Compressed body shape; strong, stout bodies

Caudal Fin: Rounded / Truncate / Lunate caudal fin

Face Shape: Superior mouth

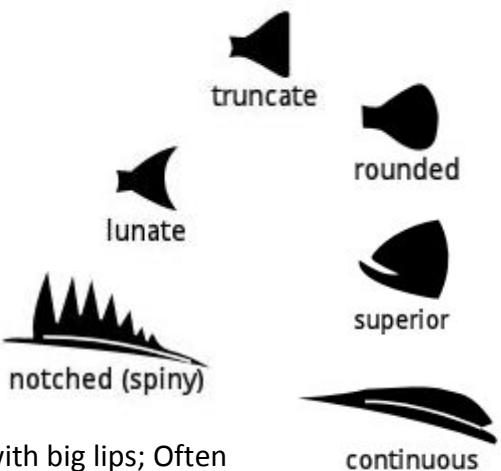
Dorsal Fin: Continuous dorsal fins; Spiny 1st dorsal fin

Swimming Behaviour: Swim using caudal and pectoral fins

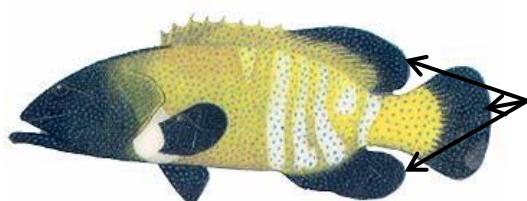
Group Size: Solitary

Position: Benthopelagic, on the bottom of reef

Other characteristics: Often static, hidden under ledges; Large mouth with big lips; Often ‘paddle’ with pectoral fins alternatively; Pectoral fins are rounded; Colors can change from one individual to another of the same species (always refer to their color last when trying to identify the species)



Peacock Grouper - *Cephalopholis argus* (Bloch & Schneider, 1801), p.154



- **Size:** Up to 60cm, commonly 40cm
- **Position:** Benthic to benthopelagic; 1 – 15m of water
- **Group Size:** Solitary or form groups of up to 12 individuals
 - Brown / green covered with small dark-edged blue spots
 - **Broad blue borders on rear dorsal, anal, pectoral and tail fins**
 - **May display 5-6 pale bars on rear body**
 - Can darken (see right) or pale (see left) rapidly



16 Nov 2016



Speckled Grouper - *Epinephelus cyanopodus* (Richardson, 1846) p. 159



- **Size:** Up to 100cm
- **Position:** Benthopelagic to pelagic; Lagoons and outer reefs over mud, rock or cobble bottom
- **Group Size:** Solitary
- Pale bluish grey color
- **Profuse small black spots** on head, body and fins and scattered, irregular larger black spots in adults
- **Juveniles and sub-adults have black margin on tail and black ventral fin tips (see right)**

truncate

spotted



22 Nov 2016



Redmouth Grouper – *Aethaloperca rogaa* (Forsskål, 1775) p. 163



- **Size:** Up to 60cm
- **Position:** Benthopelagic to pelagic; near caves or under ledges in coral rich areas of seaward reefs
- **Group Size:** Solitary
- Dark gray to black, occasionally with orangish cast
- **Frequently with pale bar across abdomen**
- **Reddish inside the mouth**

truncate



17 Nov 2016



Netfin Grouper - *Epinephelus miliaris* (Valenciennes, 1830) p. 160



3 Feb 2018

- **Size:** Up to 53cm
- **Position:** Benthic; young inhabit mangroves and seagrass beds, adults move to deeper waters
- **Group Size:** Solitary
- Undercolor white with irregular grey blotches and covered with **closely packed polygonal brown spots**



Highfin Grouper - *Epinephelus maculatus* (Bloch, 1790) p.158



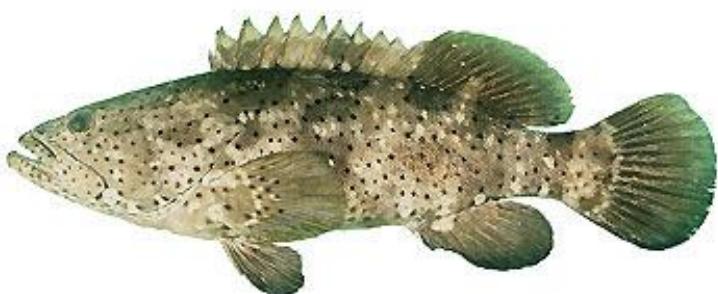
24 Jan 2017

- **Size:** Up to 60cm
- **Position:** Benthic; open sand and base of reefs in coastal, lagoon and outer reefs
- **Group Size:** Solitary
- Brownish grey to brown covered with dark brown polygonal spots
- **Pair of prominent white saddles on forehead and middle of dorsal fin/back**



reeflifesurvey.com

Malabar Grouper - *Epinephelus malabaricus* (Bloch & Schneider, 1801) p.162



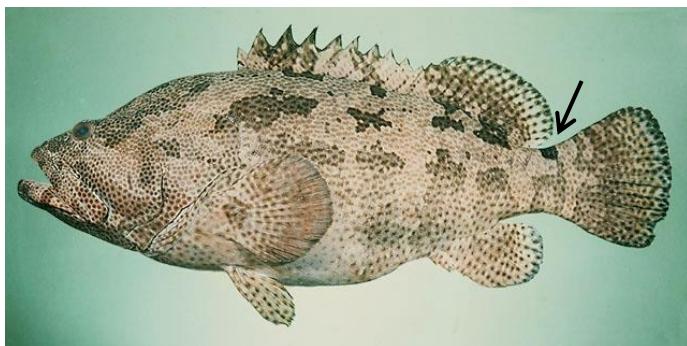
- **Size:** Up to 234cm, commonly 100cm
- **Position:** Benthopelagic; variety of habitats
- **Group Size:** Solitary
- Large
- Barred or mottled shades of grey to brown to olive with small whitish spots
- **Covered with numerous small dark spots**



18 Nov 2016



Brown-Marbled Grouper - *Epinephelus fuscoguttatus* (Forsskål, 1775) p. 162



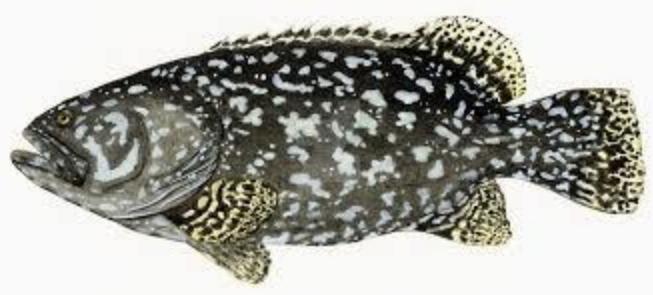
- **Size:** Up to 150cm, commonly 50cm
- **Position:** Benthopelagic; lagoon pinnacles, channels, and outer reef slopes
- **Group size:** Solitary
- Pale yellowish brown with numerous close-set small brown spots of variable intensity
- **Five vertical series of irregular brown blotches**
- Small black saddle tail base
- Deep bodied
- Adults: dorsal head profile indented at eyes



20 Nov 2016



Giant Grouper – *Epinephelus lanceolatus* (Bloch, 1790) p.162



- **Size:** Up to 270cm
- **Position:** Coastal reefs, lagoons and outer slopes
- **Group size:** Solitary
- Yellowish shades around the tip of fins
- Mottled shades of dark gray to dark brown with small whitish spots and blotches



rounded



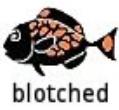
18 Nov 2016



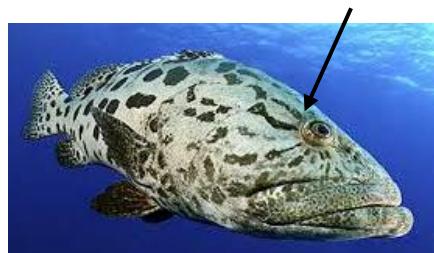
Potato Grouper – *Epinephelus tukula* (Morgans, 1959) p.162



- **Size:** Up to 200cm
- **Position:** Coastal reefs, lagoons and seaward reefs
- **Group size:** Solitary
- Pale grayish
- **Large round to ovate dark gray or blackish blotches on body**
- **Spoke-like markings radiating from eye**

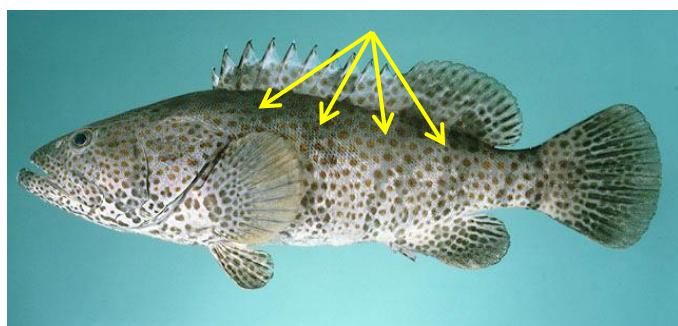


rounded

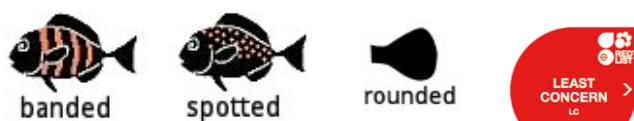


18 Nov 2016

Orange-Spotted Grouper - *Epinephelus coioides* (Hamilton, 1822) p. 162



- **Size:** Up to 95 cm
- **Position:** Benthopelagic; turbid coastal reefs and estuaries
- **Group size:** Solitary
- Tan to dark grey-brown with numerous orangish spots on head, body and fins
- **Four irregular ladder or H-shaped dark bars** and 3-4 blackish saddles on back



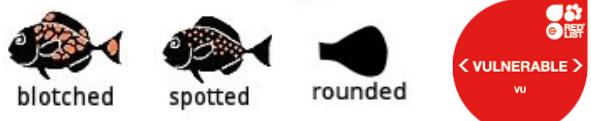
21 Nov 2016



Camouflage Grouper - *Epinephelus polyphekadion* (Bleeker, 1849) p.160



- **Size:** Up to 75cm
- **Position:** Benthopelagic; Clear water of lagoons and outer reefs
- **Group size:** Solitary
- Greenish brown with irregular white and brown blotches, mostly on upper half of body
- Numerous small dark brown spots on head, body and fins
- **Dark saddle on tail base**



20 Nov 2016



Roving Coral Grouper - *Plectropomus tessuliferus* (Fowler, 1904)



21 Nov 2016

- **Size:** Up to 63cm
- **Position:** Benthopelagic; shallow lagoons and seaward reefs
- **Group size:** Solitary
 - Brown to orange-red with numerous small, dark-edged blue spots on head, body and fins (only basally on pectorals)
 - Some spots on side of body are vertically elongate



Leopard Coral Grouper - *Plectropomus leopardus* (Lacepède, 1802) p. 164



20 Nov 2016

- **Size:** Up to 75cm
- **Position:** Benthopelagic; coastal and lagoon reefs
- **Group size:** Solitary
 - Red, pale grey or olive to dark brown with numerous dark-edged blue spots on head, body (except ventrally) and median fins
 - Narrow white/blue posterior margin on caudal fin, except near corners
 - **Blue Ring around eye**



Coral Grouper – *Cephalopholis miniata* (Forsskål, 1775) p. 156



- **Size:** Up to 50cm
- **Position:** Benthopelagic; coastal and lagoon reefs
- **Group size:** Solitary
 - Orange-reddish with numerous of dark-edges spots
 - Narrow blue margin on all fins except pectorals. Pale phase can be occurred (see left)
 - **Purplish coloration towards the posterior end.**



rounded



12 Nov 2017



Spotted Coral Grouper – *Plectropomus maculatus* (Bloch, 1790) p. 164



- **Size:** Up to 125 cm
- **Position:** Benthopelagic; silty coastal reefs
- **Group size:** Solitary
 - Red, pale gray or olive to dark brown
 - **Numerous small blue spots, elongated towards the anterior end.**



lunate
(slightly)



29 Jan 2018



White-Edged Lyretail - *Variola albimarginata* (Baissac, 1953) p. 164



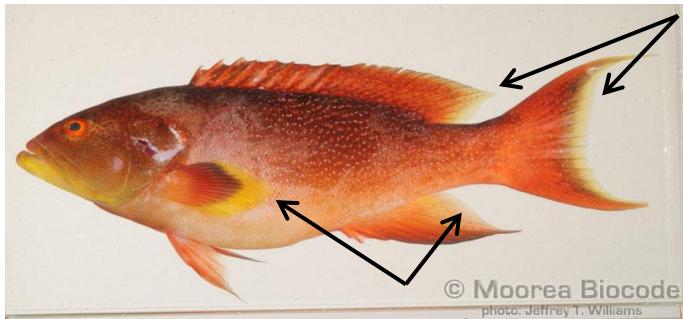
- **Size:** Up to 60 cm
- **Position:** Benthopelagic; Coastal reefs, lagoons and outer reefs.
- **Group size:** Solitary
- Brownish orange to pink or red with violet spots on head, body and fins
- **Lyre-shaped tail with white margin**



1 Dec 2017



Yellow-Edged Lyretail - *Variola louti* (Forsskål, 1775) p. 164



- **Size:** Up to 83cm, commonly 60cm
- **Position:** Benthopelagic; Clear-waters of lagoons and outer reefs
- **Group size:** Solitary
- Violet to orange-red to brown with violet to blue spots on head, body and fins
- Juveniles have a white line from forehead to snout
- **Pectoral, dorsal and anal fins and lyre-shaped tail with yellow margins**
- Front of jaw holds a pair of large canines



20 Nov 2016



Chocolate Grouper – *Cephalopholis boenak* (Bloch, 1790) p. 157

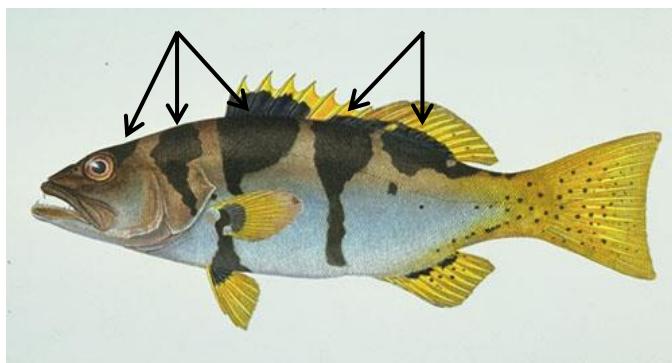


16 Nov 2016

- **Size:** Up to 26cm
- **Position:** Benthic; Lagoons, reef flats and dwaward slopes to 10m
- **Group size:** Solitary
- Usually display 7-8 dark bars on side
- Tail with dark corners edged in blue
- Dark spot under upper rear gill cover



Blacksaddle Coral Grouper - *Plectropomus laevis* (Lacepède, 1801) p. 165



21 Nov 2016

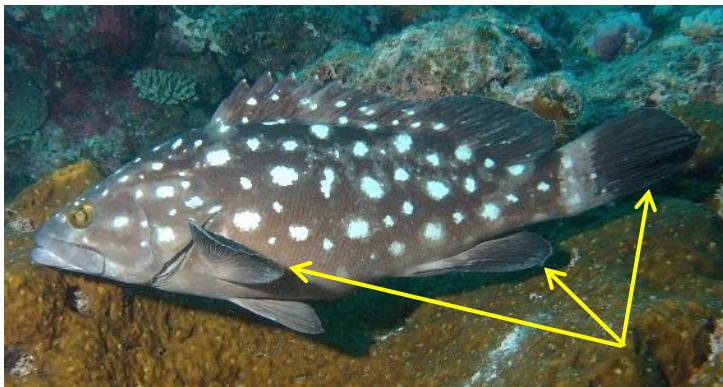
- **Size:** Up to 125cm, commonly 85cm
- **Position:** Benthopelagic; lagoons and seaward reefs
- **Group size:** Solitary
- 2 color variations – Pale and Dark, **with 3-5 dark saddles on body and head and scattered dark-edged blue spots**
- Pale variation (below – left): whitish body, yellow fins
- Dark variation (below – right): grey / olive body, dark fins



© Robert F. Myers



White-Spotted Grouper - *Epinephelus coeruleopunctatus* (Bloch, 1790) p.161

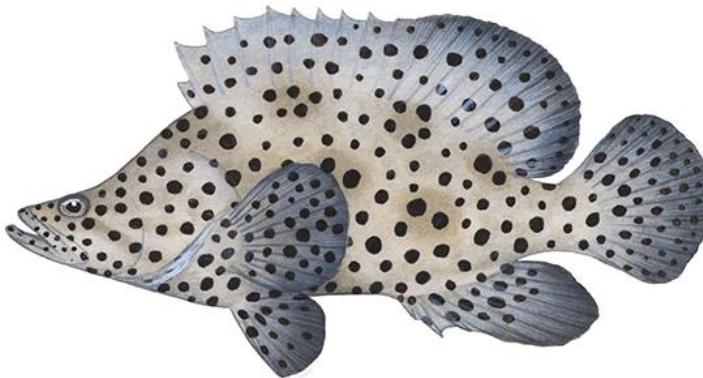


21 Nov 2016

- **Size:** Up to 76cm
- **Position:** Benthic; Inside or near caves of coastal, lagoon and seaward reefs
- **Group size:** Solitary
 - Brownish grey to charcoal with white spots and scattered, larger whitish blotches
 - Series of dark blotches along back
 - Pectoral, anal and convex caudal fins black



Barramundi - *Cromileptes altivelis* (Valenciennes, 1828) p.163

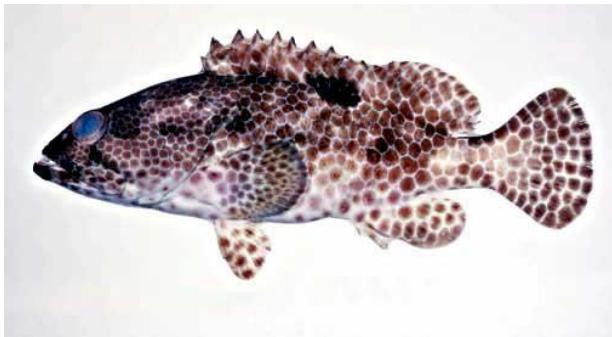


20 Nov 2016

- **Size:** Up to 66cm
- **Position:** Benthic; inhabit lagoon and seaward reef and are typically found in dead or silty area.
- **Group size:** Solitary
 - Pale greenish white with large widely spaced black spots.
 - Concave profile above eyes.



One-Blotch Grouper - *Epinephelus melanostigma* (Schultz, 1953) p. 160

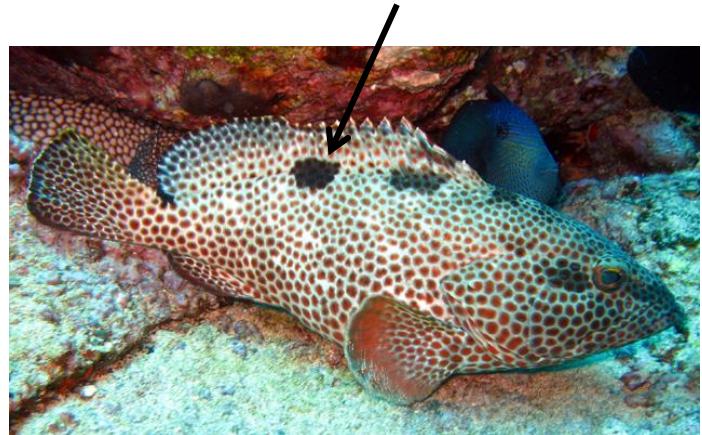


rounded



15 Jan 2018

- **Size:** Up to 33 cm
- **Position:** Benthic; Lagoons, reef flats and dwaward slopes to 10m
- **Group size:** Solitary
 - Polygonal spots in varying shades of brown
 - **Merging spots on back form dark saddle under mid-dorsal fins**



SNAPPERS – LUTJANIDAE

Body Shape: Compressed body shape

Caudal Fin: Forked / Truncate caudal fin

Face Shape: Terminal mouth, with slightly upturned snout

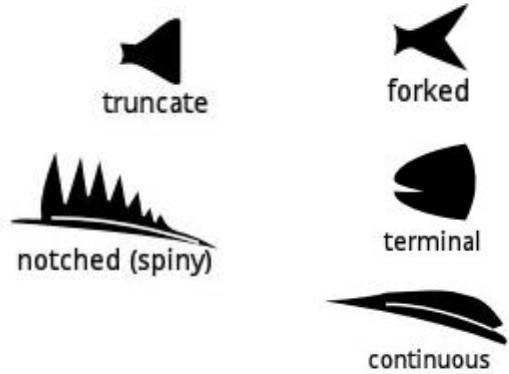
Dorsal Fin: Continuous dorsal fins; Spiny 1st dorsal fin

Swimming Behaviour: Swim using caudal fin

Group Size: Solitary / Form Schools

Position: Pelagic / Benthopelagic

Other characteristics: Highly active; Large eyes and mouth; 1st dorsal fin usually lies flat while swimming; Large mouth with prominent canines; Long, pointed pectoral fins; Pointed pelvic and anal fins



Red Snapper - *Lutjanus bohar* (Forsskål, 1775) p. 107



 forked
(slight)



4 Mar 2015

- **Size:** Up to 80cm
- **Position:** Pelagic; sheltered lagoons and outer reefs
- **Group size:** Either solitary or form groups
 - Red to reddish grey
 - Dark reddish fins, notably upper edge of pectoral fins
 - **Pronounced groove in front of eyes**
 - Juveniles and small adults have 1/2 silvery-white spots on back



Blubberlip Snapper - *Lutjanus rivulatus* (Cuvier, 1828) p. 107



 forked
(slight)



5 Mar 2015

- **Size:** Up to 80cm, commonly 60cm
- **Position:** Near shore and outer reefs
- **Group size:** Solitary or form small groups (15 – 20 individuals)
 - Greyish green with wavy yellow lines on head
 - **Yellow fins and outer edge of tail**
 - Slightly upturned snout with large mouth



Humpback Snapper - *Lutjanus gibbus* (Forsskål, 1775) p. 103



forked
(rounded lobes)



4 Mar 2015

- **Size:** Up to 50cm, commonly 45cm
- **Position:** Benthopelagic; Lagoons, passages and outer reef slopes
- **Group size:** Solitary or form schools
 - Greyish red to red and sometimes with a yellow tinge
 - **Maroon forked tail with rounded lobes**
 - Orange around base of pectoral fin
 - Black margin running at an angle from the dorsal and filling the tail
 - **Concave slope above eye and hump on forehead**



Blacktail Snapper - *Lutjanus fulvus* (Schneider, 1801) p. 106



lunate
(slightly)

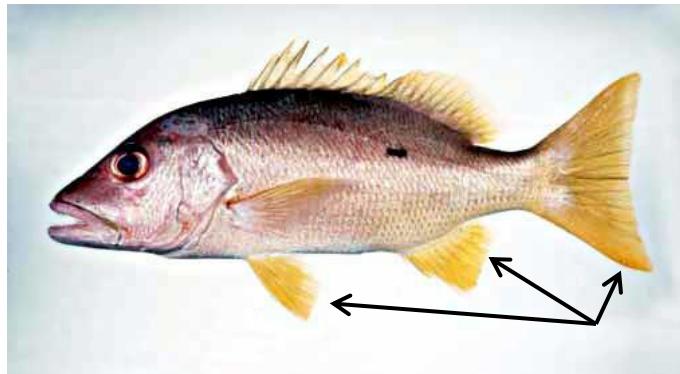


4 Mar 2015

- **Size:** Up to 50cm, commonly 45cm
- **Position:** Benthopelagic; Lagoons, passages and outer reef slopes
- **Group size:** Solitary or loose aggregation
 - Silvery white to yellow with dark tail.
 - **Dark dorsal fin.**
 - **Yellow pectoral, ventral and anal fins.**



Onespot Snapper - *Lutjanus monostigma* (Cuvier, 1828) p. 106



5 Mar 2015

- **Size:** Up to 60cm, commonly 50cm
- **Position:** Benthopelagic; Outer reef areas
- **Group size:** Solitary or form small groups
 - Adults grey or yellowish grey to brown with yellow fins
 - **May display a horizontally elongate black spot on rear**



Chinamanfish – *Syphorus nematophorus* (Bleeker, 1860) p. 110

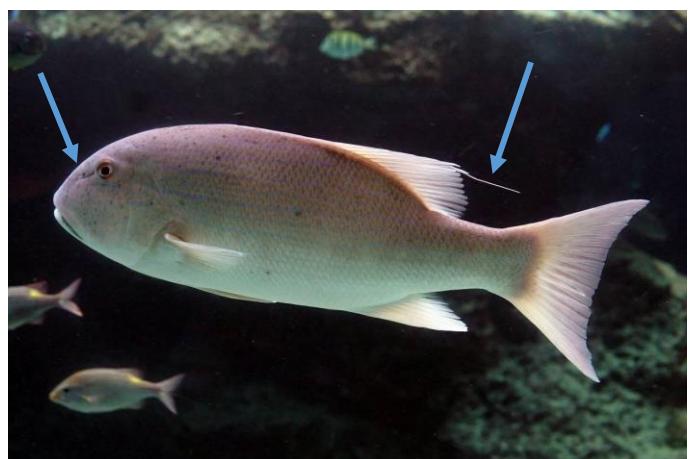


Juvenile

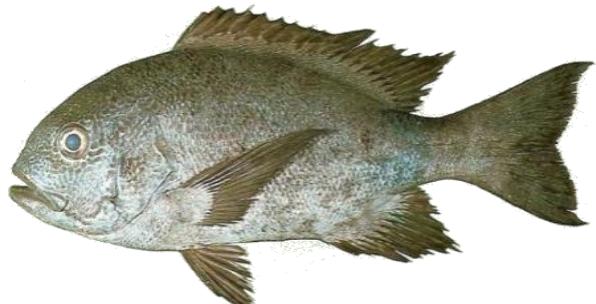


5 Mar 2015

- **Size:** Up to 80 cm
- **Position:** Benthopelagic; coastal reefs
- **Group size:** Solitary or form large schools
 - Reddish to yellowish with faint to distinct irregular bars
 - Numerous faint bluish stripes on head and body
 - Occasionally filaments extend from upper rear of dorsal fins
 - **Pronounced groove in front of eyes**
 - On young and subadults the blue head and body stripes are much brighter and obvious, filaments more commonly extend.



Black Snapper - *Macolor niger* (Forsskål, 1775) p.109



5 Mar 2015

- **Size:** Up to 75cm, commonly 40cm
- **Position:** Pelagic; Steep slopes of lagoons, passes and outer reefs
- **Group size:** Solitary or form schools
 - Grey to grey-brown with numerous indistinct blotches
 - No blue lines or spots on head
 - Large eye with dull gold iris



Midnight Snapper - *Macolor macularis* (Fowler, 1931) p. 109



5 Mar 2015

- **Size:** Up to 60cm
- **Position:** Pelagic; edge of steep slopes of lagoons, passes and outer reefs
- **Group size:** Solitary or form groups
 - Black with pale line markings in scales
 - Blue line and spot markings on head
 - Large eye with bright gold iris



Smalltooth Jobfish - *Aphareus furca* (Lacepède, 1801) p. 110

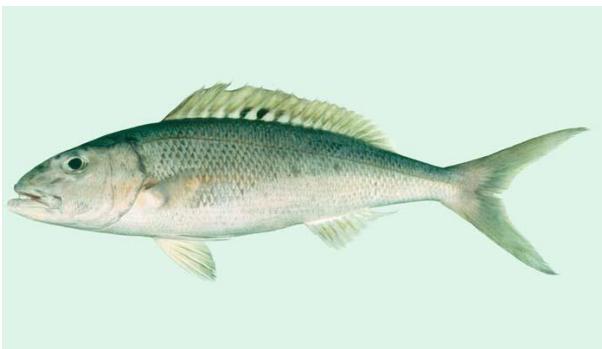


4 Mar 2015

- **Size:** Up to 70cm, commonly 40cm
- **Position:** Pelagic and Benthopelagic; Inshore coral and rocky reefs and in clear waters of lagoons
- **Group size:** Solitary or in small groups
 - Blue-grey coloration
 - Slender body with large mouth and strongly forked tail
 - Long pectoral fins
 - Dark outline on rear edge and bar on gill cover



Green Jobfish - *Aprion virescens* (Valenciennes, 1830) p. 110



4 Mar 2015

- **Size:** Up to 112 cm, commonly 90.0 cm
- **Position:** Benthopelagic; Lagoons, reef passes or outer slopes
- **Group size:** Usually solitary
 - Dark green to bluish grey
 - Slender cylindrical body with strongly forked tail
 - Pectoral fins short
 - No distinctive markings



Pinjalo Snapper – *Pinjalo pinjalo* (Bleeker, 1850) p. 108

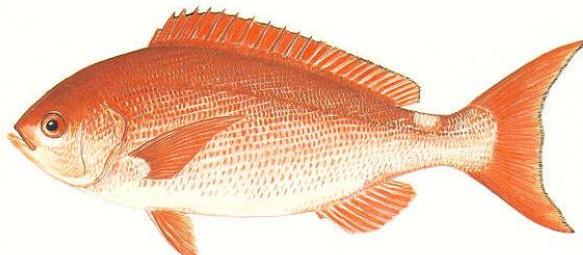


5 Mar 2015

- **Size:** Up to 50 cm
- **Position:** Benthopelagic; costal reefs and outer slopes
- **Group size:** form schools
 - Variable shades from reddish gray to red that can quickly intensify or pale
 - Yellow ventral fins



Slender Pinjalo – *Pinjalo lewisi* (Randall, Allen & Anderson, 1987) p. 108



5 Mar 2015

- **Size:** Up to 50 cm
- **Position:** Benthopelagic; costal reefs and outer slopes
- **Group size:** form schools
- Variable shades from grayish red to bright red.
- Similar to Pinjalo Snapper, distinguished by no yellow ventral fins



EMPERORS - LETHRINIDAE

Body Shape: Compressed body shape

Caudal Fin: Forked / Truncate / Lunate caudal fin

Face Shape: Terminal mouth

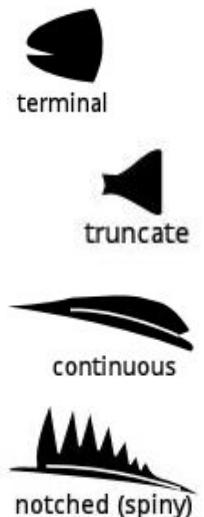
Dorsal Fin: Continuous dorsal fins; Spiny 1st dorsal fin

Swimming Behaviour: Swim using caudal fin

Group Size: Solitary / Form Schools

Position: Benthopelagic

Other characteristics: Extremely motile; Large eyes and mouth; 1st dorsal fin usually lies flat while swimming; Most species inhabit the reef's fringes where they feed primarily on sand-dwelling invertebrates; Many species can rapidly switch on and off dark body patterns; Less prominent teeth than snappers



Longface Emperor - *Lethrinus olivaceus* (Valenciennes, 1830) p. 118



terminal
: (elongated)

lunate

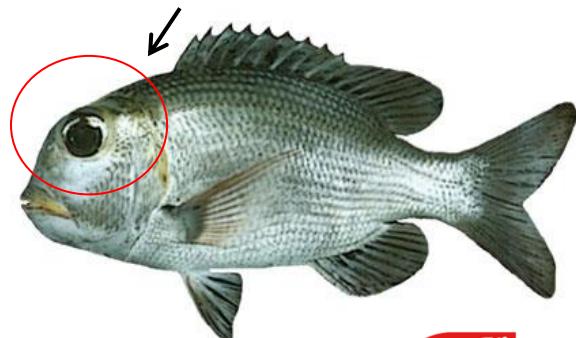


9 Mar 2015

- **Size:** Up to 100cm, commonly 70cm
- **Position:** Benthopelagic; Sand bottoms of lagoons and outer slopes
- **Group size:** Solitary or form schools
- **Elongate body with long pointed snout**
- Grey to olive with no distinct markings; often display mottled pattern
- Highly active and fast swimming



Humpnose Bigeye Bream - *Monotaxis grandoculis* (Forsskål, 1775) p.116

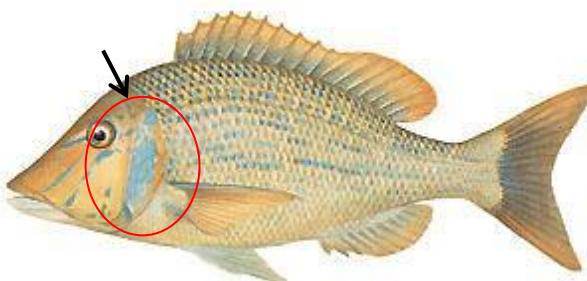


9 Mar 2015

- **Size:** Up to 60cm, commonly 40cm
- **Position:** Benthopelagic; Found in sand and rubble areas near coral reefs
- **Group size:** Solitary or form groups
 - Black to grey, silver or brown back gradating to pale underside, often **yellowish tints on head and lips**
 - Black spot on base of pectoral fin
 - May display **4 broad dark bars on body**



Spangled Emperor – *Lethrinus nebulosus* (Forsskål, 1775) p.118



9 Mar 2015

- **Size:** Up to 80cm
- **Position:** Benthopelagic; Flat sand bottoms close to reefs; Seagrass beds and mangrove areas
- **Group size:** Solitary to large groups
 - Elongate pointed snout
 - Pale grey with blue to white scale centers
 - **Blue streaks on cheek**



Orange-Striped Emperor – *Lethrinus obsoletus* (Forsskål, 1775) p. 119



9 Mar 2015

- **Size:** Up to 50 cm
- **Position:** Benthopelagic; Sand and rubbles ares of coastal reefs, lagoons and outer slopes
- **Group size:** Solitary or form small groups
 - Pale gray
 - Yellow-Orange stripe from base of pectoral fin to tail



Thumbprint Emperor – *Lethrinus harak* (Forsskål, 1775) p. 119

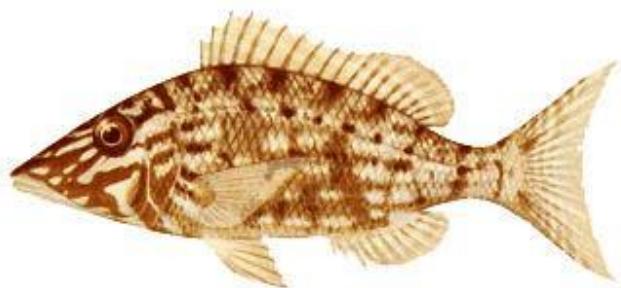


9 Mar 2015

- **Size:** Up to 50 cm
- **Position:** Benthopelagic; Sand and rubbles ares of coastal reefs, lagoons and outer slopes
- **Group size:** Solitary or form small groups
 - Pale gray
 - Dark elongate blotch on middle of side (thumbprint-like)



Smalltooth Emperor – *Lethrinus microdon* (Valenciennes, 1830) p. 118



9 Mar 2015

- **Size:** Up to 70cm
- **Position:** Benthopelagic; Coastal reefs, lagoons and outer slopes
- **Group size:** Solitary or form groups
 - Long pointed snout
 - Silvery grey
 - **Dark streaks radiate from fore lower quarter of eye**
 - May camouflage by changing to mottled and blotched shades of brown (see right), pale stage (see left)



Yellowlip Emperor – *Lethrinus erythracanthus* (Smith, 1959) p. 120



9 Mar 2015

- **Size:** Up to 70cm
- **Position:** Benthopelagic; deep lagoons and outer reef slopes
- **Group size:** Solitary or form small groups
- Dark bluish head and dark gray body with yellow or occasionally reddish fin
- Juvenile – yellowish body with several narrow white stripes or broken lines on side (see right)



BARRACUDAS - SPHYRAENIDAE

Body Shape: Fusiform

Caudal Fin: Forked caudal fin

Face Shape: Superior mouth; Large underslung jaw

Dorsal Fin: Widely Separate dorsal fins

Swimming Behaviour: Swim using caudal fin

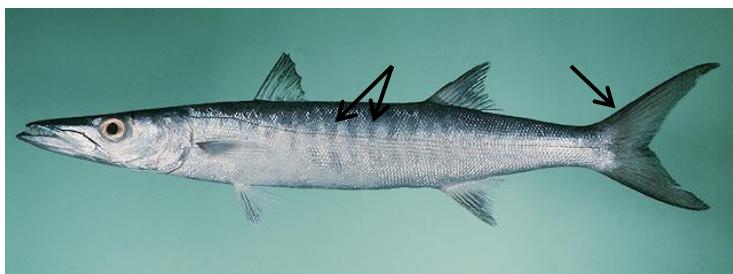
Group Size: Solitary / Form Schools

Position: Pelagic

Other characteristics: Large individuals may become solitary, whilst smaller individuals tend to school; Large, unaligned teeth



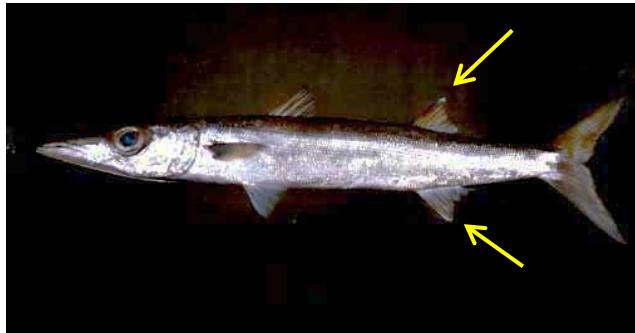
Blackfin Barracuda (also Blackmargin Barracuda) - *Sphyraena qenie* (Klunzinger, 1870) p. 130



- **Size:** Up to 140cm, commonly 80cm
- **Position:** Seaward reefs
- **Group size:** Form large schools
 - Silvery with dusky to dark tail with dark margin
 - **18-22 chevron-shaped dark markings on sides**



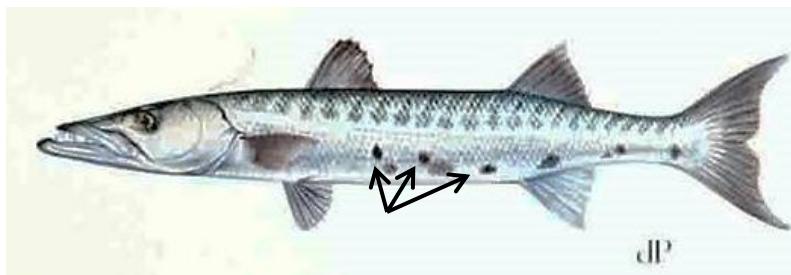
Bigeye Barracuda - *Sphyraena forsteri* (Cuvier, 1829) p. 130



- **Size:** Up to 65cm
- **Position:** Pelagic; Reefs and outer slopes
- **Group size:** Form schools
 - Silvery, median fins dusky
 - Blackish blotch behind base of pectoral fin
 - **White tips on 2nd dorsal and anal fins**



Great Barracuda – *Sphyraena barracuda* (Edwards in Catesby, 1771) p. 130

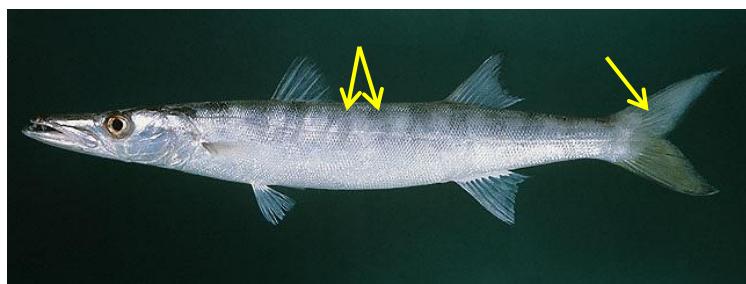


29 Jan 2013

- **Size:** Up to 180cm
- **Position:** Pelagic; Reefs and relatively shallow water
- **Group size:** Solitary or form small groups
 - Silvery, with **few scattered dark blotches**
 - Can display barred or mottled pattern



Pickhandle Barracuda - *Sphyraena jello* (Cuvier, 1829) p. 130



- **Size:** Up to 150cm
- **Position:** Pelagic; Coastal, lagoons and outer reef slopes
- **Group size:** Form schools
- Silvery with **yellowish tail**
- About **20 oblique bars on upper half of body**



Yellowtail Barracuda - *Sphyraena flavicauda* (Rüppell, 1838) p. 131



- **Size:** Up to 50cm
- **Position:** Coastal reefs, lagoons and outer reefs
- **Group size:** Form schools
- Silvery, **yellowish to yellow tail**
- Possible pair of diffuse brownish stripes on side
- May display short blackish bars on upper back



TUNAS & MACKERELS – SCOMBRIDAE

Body Shape: Fusiform

Caudal Fin: Tall & deeply Forked / Lunate caudal fin

Face Shape: Terminal mouth

Dorsal Fin: Separate dorsal fins; Spiny 1st dorsal fin

Swimming Behaviour: Swim using caudal fin

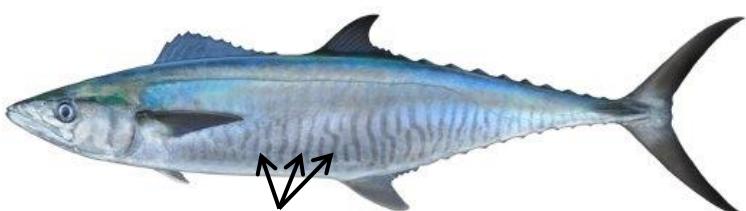
Group Size: Solitary or form schools

Position: Pelagic

Other characteristics: Display rows of sharp aligned teeth; 1 or 2 keels on caudal fin base; 5-12 finlets between 2nd dorsal/anal fin and caudal fin



Narrow-Barred Spanish Mackerel - *Scomberomorus commerson* (Lacépède, 1800) p.131



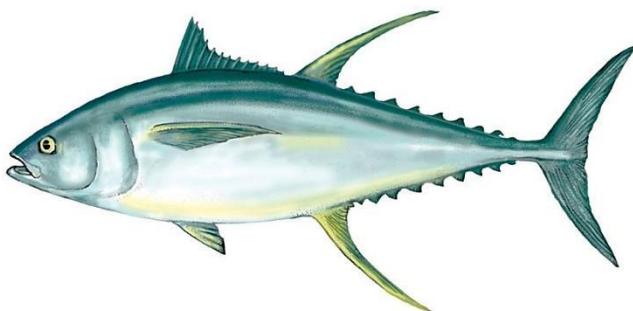
- **Size:** Up to 240cm, commonly 120cm
- **Position:** Pelagic; Outer reefs
- **Group size:** Solitary
- Silvery
- **Display numerous thin, wavy bars on body**
- Whitish 2nd dorsal and anal fins



5 Des 2009



Yellowfin Tuna - *Thunnus albacares* (Bonnaterre, 1788)

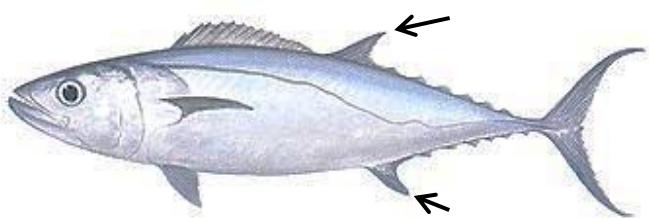


18 Feb 2011

- **Size:** Up to 240cm, commonly 150cm
- **Position:** Pelagic; Open water and reef drop-offs
- **Group size:** Form large schools
- **Very long 2nd dorsal and anal fins; long pectoral fin**
- Black metallic dark blue color on back, yellow to silver on belly
- May display 20 broken vertical lines on body
- Yellow 2nd dorsal, anal fins and finlets
- Deep bodied



Dogtooth Tuna - *Gymnosarda unicolor* (Rüppell, 1836) p.131

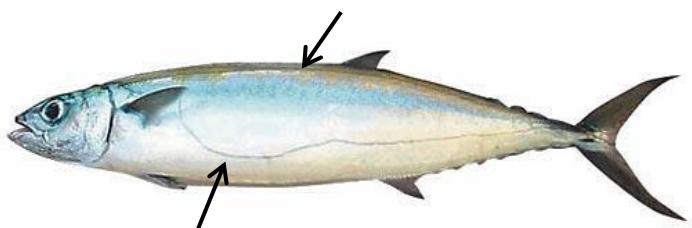


5 Dec 2009

- **Size:** Up to 200cm
- **Position:** Pelagic; Deeper lagoons, passes and outer reef slopes
- **Group size:** Solitary or in small groups
- Silvery
- **Pale tips on rear dorsal and anal fins**
- Single lateral line



Double-Lined Mackerel - *Grammatotrygon bilineatus*

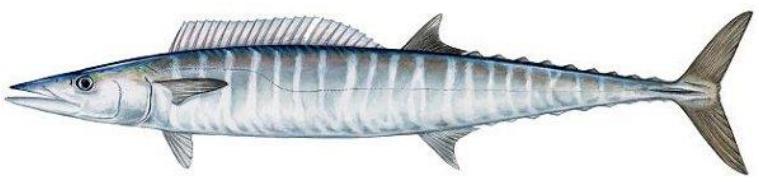


10 Dec 2009

- **Size:** Up to 100cm
- **Position:** Pelagic; Lagoon, outer reefs, drop-offs and pinnacles
- **Group size:** Solitary or form schools
 - Silvery
 - **Double lateral line:** one on upper side, one on lower side



Wahoo - *Acanthocybium solandri* (Cuvier , 1832) p. 131



25 Sep 2010

- **Size:** Up to 210cm
- **Position:** Pelagic
- **Group size:** Solitary or in pairs
 - Silvery
 - Elongate pointed snout
 - May display wavy bars on body

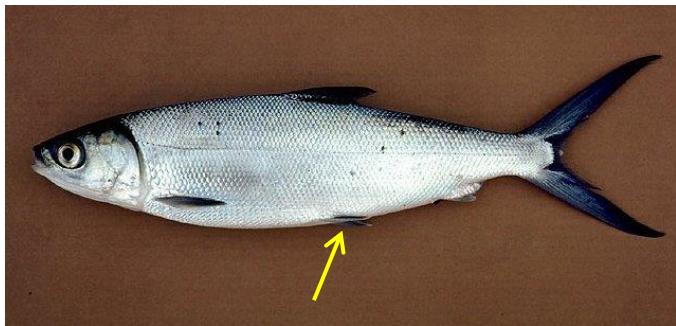


OTHER NOTABLE SPECIES (NOT INDICATORS)

MILKFISHES – CHANIDAE

Main characteristics: Fusiform body shape; Large, deeply forked tail; Terminal mouth; Single dorsal fin; Swim using caudal fin

Milkfish - *Chanos chanos* (Lacépède, 1803) p. 133



terminal



forked



23 Jun 2016

- **Size:** Up to 180cm
- **Position:** Pelagic; Near surface of lagoons and seaward reefs
- **Group size:** Form schools
 - Silvery to bluish green on back
 - **Ventral fins at mid-body below dorsal fin**
 - Dark tail



WRASSES – LABRIDAE

Main characteristics: Compressed body shape, stout bodies; Typically rounded tail; Terminal mouth; Continuous dorsal fin; Swim using pectoral fins; Large, noticeable scales; Often quite colorful, with different phases: Initial Phase (IP) and Terminal Phase (TP)

Humphead Wrasse - *Cheilinus undulatus* (Rüppell, 1835) p. 193

(also Maori Wrasse or Napoleonfish)



terminal



continuous



rounded



painted

- **Size:** Up to 229cm
- **Position:** Benthopelagic; Lagoon and outer reefs
- **Group size:** Solitary or in pairs
 - 2 dark lines extend from rear eye
 - TP: Blue head with maze-like markings; green body; pronounced hump above eyes
 - IP: Olive to bluish/greenish grey body; dark diagonal streaks extend from fore lower eye



30 Apr 2004

WHAT BONEY FISH NOT TO RECORD ON SURVEY DIVES



UNICORNFISH



PUFFERFISH



BIGEYES



ANGELFISH



TRIGGERFISH



SPADEFISH

... AND MORE



SURGEONFISH



SWEETLIPS



RABBITFISH



FUSILIERS



PARROTSHARK