

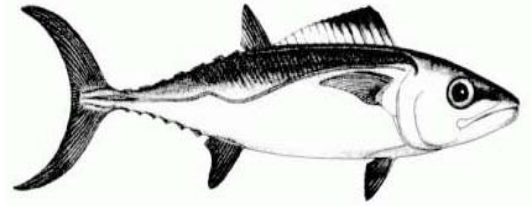
A Guide to the Tunas (and Tuna-like Species) Found in Indonesian Waters

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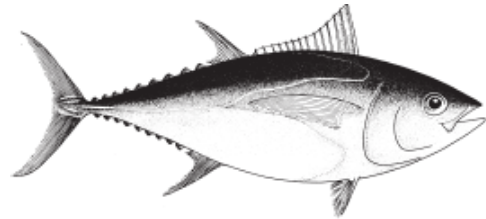
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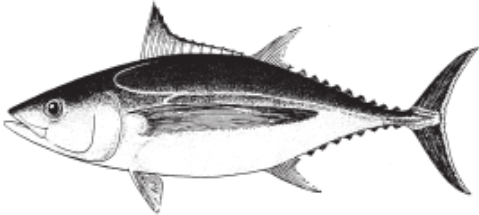
Skipjack tuna



Dogtooth tuna



Big-eye tuna



Albacore tuna



Yellowfin tuna



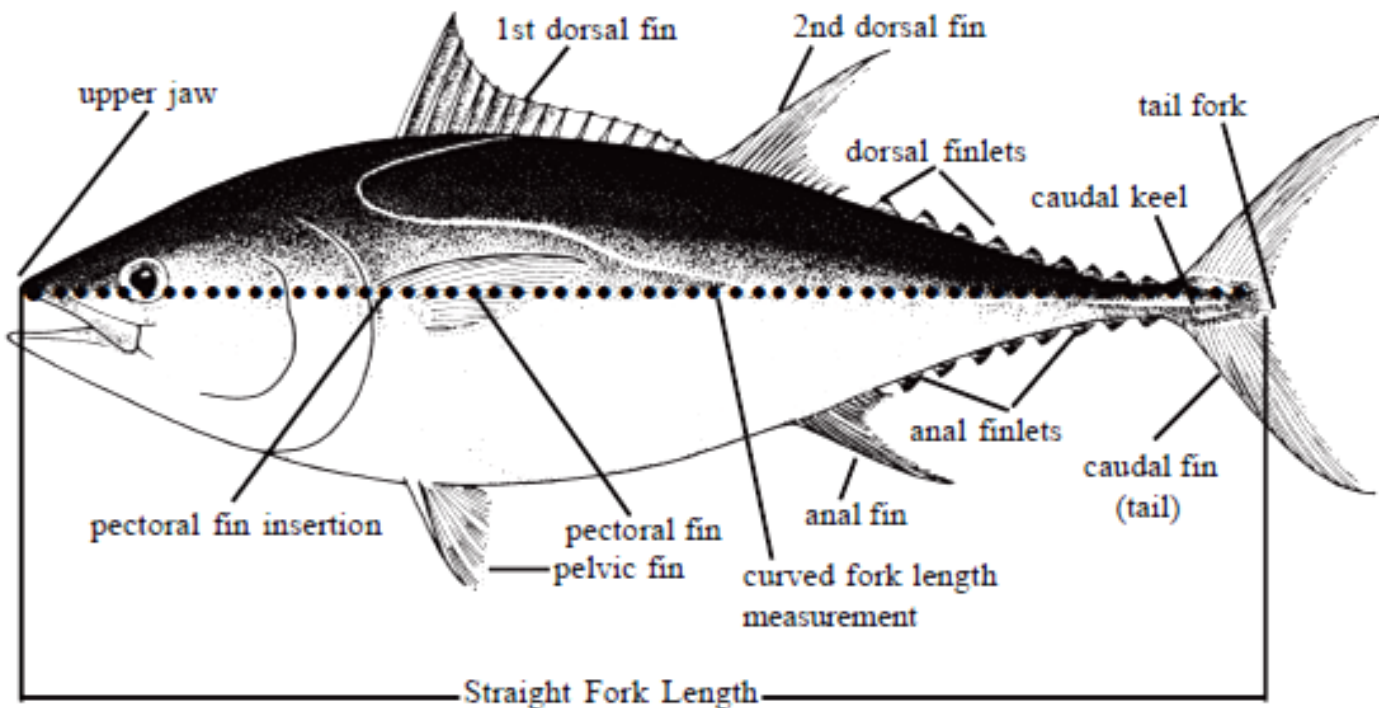
Longtail tuna

How to Measure and Identify Tuna

Characteristic and important features of tuna which will aid in the identification process

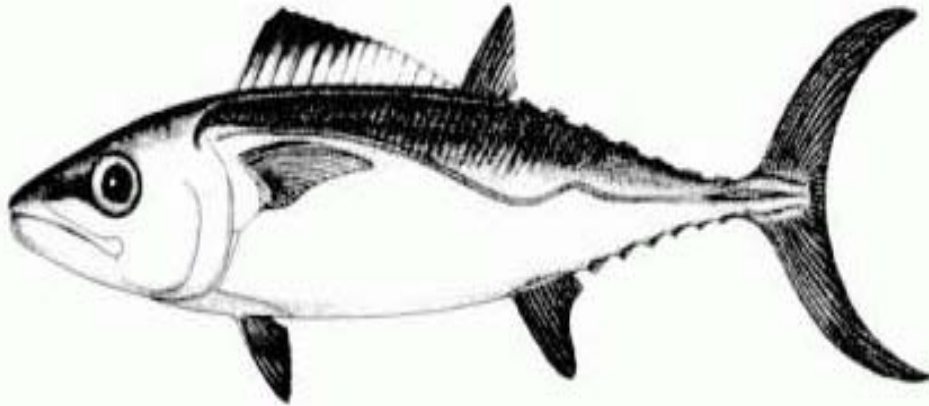
- Body markings
 - Body shape
 - Head and eye shape
 - Pectoral fin characteristics
 - Caudal fin characteristics
 - Finlet coloration
- Several internal features can also be used to aid the identification including the liver and swim bladder but these will not be discussed here.

Body parts named and measurement description



- Straight fork length → is the measurement of length from the tip of the snout to the middle of the caudal fin rays.
- Curved fork length → a measurement of the length of a tuna taken in a line tracing the contour of the body from the tip of the upper jaw to the fork of the tail, which abuts the upper side of the pectoral fin and the upper side of the caudal keel.

Gymnosarda unicolor / Dogtooth tuna



Classification / Names

Actinopterygii > [Perciformes](#) > [Scombridae](#) > Scombrinae > *Gymnosarda unicolor*

Size / Weight / Age

Max length : 248 cm; common length : 190 cm; max. published weight: 131.0 kg

Environment

Marine; reef-associated; oceanodromous; depth range 10 - 100 m

Brief description

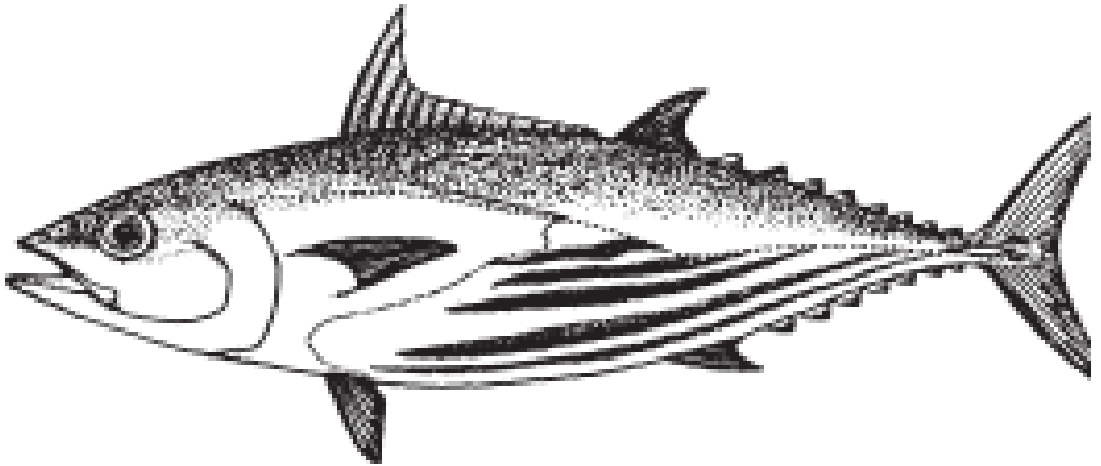
- [Dorsal spines \(total\): 13 - 15](#); [Dorsal soft rays \(total\): 12-14](#); [Anal spines: 0](#); [Anal soft rays: 12 - 13](#); [Vertebrae: 38](#).
- Mouth fairly large, upper jaw reaching to middle of eye.
- Lateral line strongly curved.
- Swim bladder large, spleen visible in ventral view on the right side of the body.
- The back and upper sides brilliant blue-black, lower sides and belly silvery; no lines, spots or other markings on the body.

Biology

An offshore species found mainly around coral reefs. Generally solitary or occur in small schools of six or less. Preys on small schooling fishes such as *Decapterus*, *Caesio*, *Nasio*, *Cirrhilabrus*, *Pterocaesio* and squids. Marketed canned and frozen

IUCN Red List Status → Not Evaluated

Katsuwonus pelamis / Skipjack tuna



Classification / Names

Actinopterygii > [Perciformes](#) > [Scombridae](#) > Scombrinae > Katsuwonus pelamis

Size / Weight / Age

Max length : 110 cm; common length : 80.0 cm; Max published weight: 34.5 kg Max reported age: 12

Length at first maturity

Lm [40.0](#), range 40 - 45 cm

Environment

Marine; pelagic-oceanic; oceanodromous; depth range 0 - 260 m.

Short description

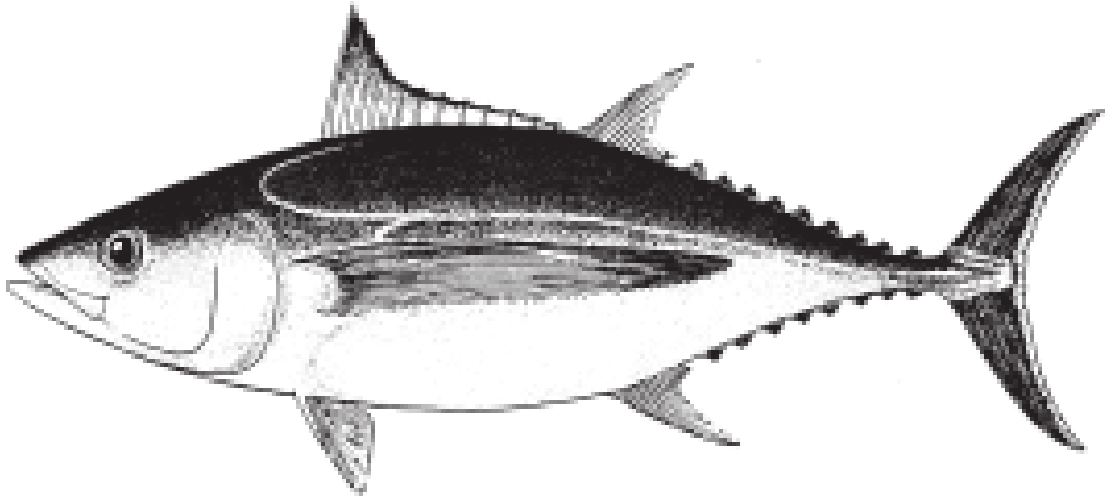
- [Dorsal spines \(total\): 14 - 16](#); [Dorsal soft rays \(total\): 14-15](#); [Anal spines: 0](#); [Anal soft rays: 14 - 15](#); [Vertebrae: 41](#).
- Body without scales except for the corselet and the lateral line. Swim bladder absent.
- The back is dark purplish blue, lower sides and belly silvery, with 4 to six very conspicuous longitudinal dark bands which in live specimens may appear as continuous lines of dark blotches.

Biology

Found in offshore waters; larvae restricted to waters with surface temperatures of 15°C to 30°C. Exhibit a strong tendency to school in surface waters with birds, drifting objects, sharks, whales and may show a characteristic behavior like jumping, feeding, foaming, etc. Feed on fishes, crustaceans, cephalopods and mollusks; cannibalism is common. Spawn throughout the year in the tropics, eggs released in several portions. Eggs and larvae are pelagic. Preyed upon by large pelagic fishes. Also taken by trolling on light tackle using plugs, spoons, feathers, or strip bait. Marketed fresh, frozen or canned; also dried-salted and smoked.

IUCN Red List Status → Not Evaluated

Thunnus alalunga/ Albacore



Classification / Names

Actinopterygii > [Perciformes](#) > [Scombridae](#) > Scombrinae > *Thunnus alalunga*

Size / Weight / Age

Max length : 140 cm; common length : 100.0 cm; Max published weight: 60.3 kg; max. reported age: 9 years

Length at first maturity

L_m [85.0](#), range 85 - ? cm

Environment

Marine; pelagic-oceanic; oceanodromous; depth range 0 - 600 m

Short description

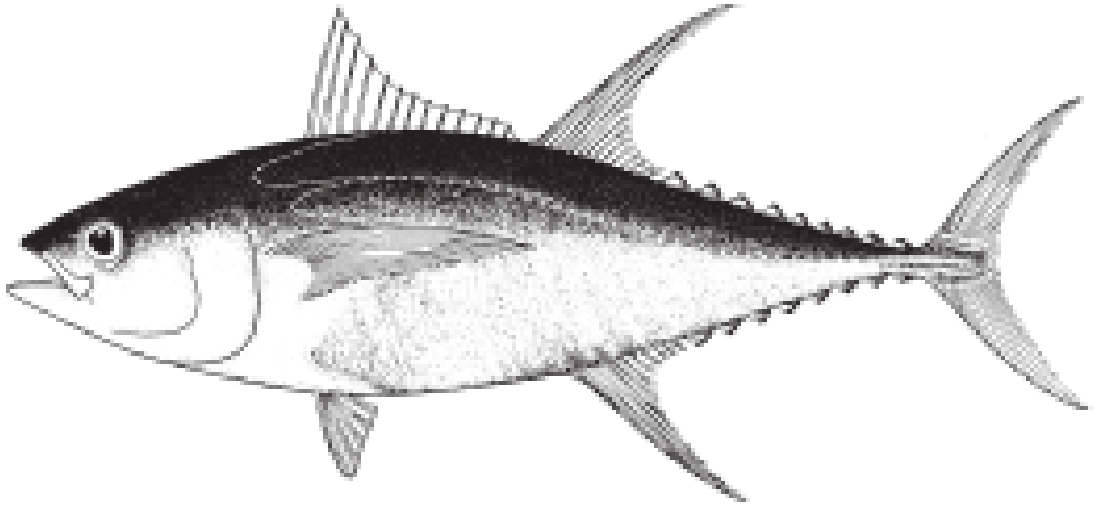
- [Dorsal spines \(total\): 11 - 14](#); [Dorsal soft rays \(total\): 12-16](#); [Anal spines: 0](#); [Anal soft rays: 11 - 16](#). Anterior spines much higher than posterior spines giving the fin a strongly concave outline.
- Interpelvic process small and bifid. Body with very small scales.
- Pectoral fins remarkably long, about 30% of fork length or longer in 50 cm or longer fish.
- Ventral surface of liver striated and the central lobe is largest.

Biology

An epipelagic and mesopelagic, oceanic species, abundant in surface waters of 15.6° to 19.4°C; deeper swimming, large albacore are found in waters of 13.5° to 25.2°C; temperatures as low as 9.5°C may be tolerated for short periods. Known to concentrate along thermal discontinuities Form mixed schools with skipjack tuna (*Katsuwonus pelamis*), Yellowfin tuna (*Thunnus albacares*) and bluefin tuna (*T. maccoyii*), schools may be associated with floating objects, including sargassum weeds. Feed on fishes, crustaceans and squids. Eggs and larvae are pelagic. Sexual maturity reached at 90 cm. Highly appreciated and marketed fresh, smoked, deep frozen or canned.

IUCN Red list Status → Data Deficient (DD)

Thunnus albacares/ Yellowfin tuna



Classification / Names

Actinopterygii > [Perciformes](#) > [Scombridae](#) > Scombrinae > Thunnus albacores

Size / Weight / Age

Max length : 239 cm; common length : 150 cm; Max published weight: 200.0 kg; Max reported age: 9 years

Length at first maturity

Lm [107.5](#), range 101 - ? cm

Environment

Marine; brackish; pelagic-oceanic; oceanodromous depth range 1 - 250 m, usually 1 - 100 m

Short description

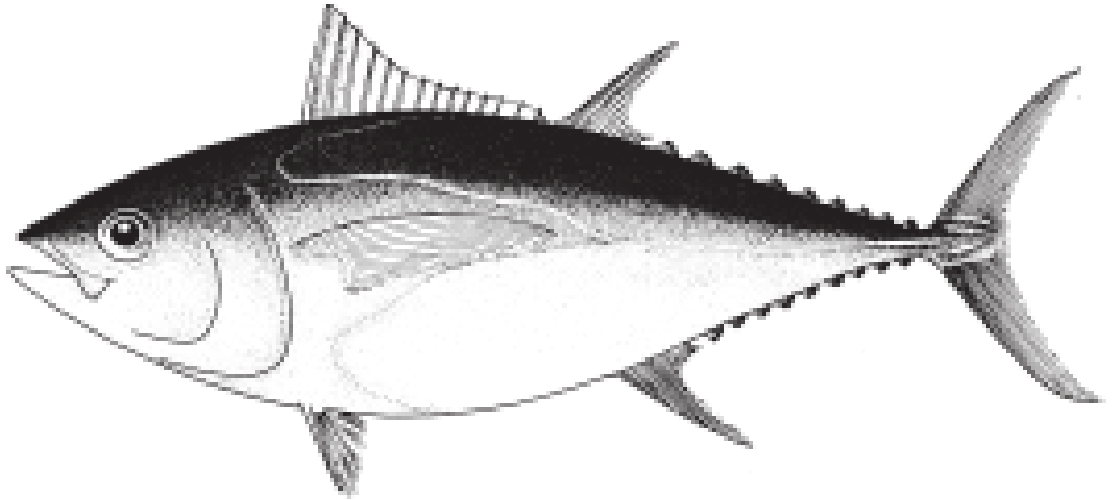
- Fusiform body, (slender when compared to bigeye).
- Small eyes and head.
- [Dorsal spines](#) (total): 11 - 14; [Dorsal soft rays](#) (total): 12-16; [Anal spines](#): 0; [Anal soft rays](#): 11 - 16; [Vertebrae](#): 39.
- Fish with very long second dorsal fin and anal fin, (which in some may reach well over 20% of the FL). The pectoral fin is moderately long, usually reaching beyond the second dorsal fin origin but not beyond the end of its base.
- Color is black metallic dark blue changing through yellow to silver on the belly. The belly frequently has about 20 broken, nearly vertical lines. The dorsal and anal fins and finlets are bright yellow, with a narrow black margin.

Biology

An oceanic species occurring above and below the thermoclines. Pelagic in open water , but rarely seen near reefs. They school primarily by size, either in monospecific or multi-species groups. Larger fish frequently school with porpoises, also associated with floating debris and other objects . Feed on fishes, crustaceans and squids. It is sensitive to low concentrations of oxygen and therefore is not usually caught below 250 m in the tropics Peak spawning occurs during the summer, in batches Eggs and larvae are pelagic Encircling nets (purse seine) are employed to catch schools near the surface. Marketed mainly frozen and canned but also fresh and smoked Highly valued for sashimi

IUCN Red List Status → Least Risk, Low Concern

Thunnus obesus/ Big-eye tuna



Classification / Names

Actinopterygii > [Perciformes](#) > [Scombridae](#) > Scombrinae > Thunnus obesus

Size / Weight / Age

Max length : 250 cm; common length : 180 cm; Max published weight: 210.0 kg; Max reported age: 11 years

Length at first maturity

L_m ? range 100 - 125 cm

Environment

Marine; pelagic-oceanic; oceanodromous; depth range 0 - 250 m

Short description

- [Dorsal spines \(total\): 13 - 14](#); [Dorsal soft rays \(total\): 14-15](#); [Anal spines: 0](#); [Anal soft rays: 14](#); [Vertebrae: 39](#).
- A large species, deepest near the middle of the first dorsal fin base. Has a distinctive large eye.
- Lower sides and belly whitish; a lateral iridescent blue band runs along the sides in live specimens. The first dorsal fin is deep yellow, the second dorsal and anal fins are light yellow, the finlets are bright yellow edged with black.

Biology

Occur in areas where water temperatures range from 13°-29°C, but the optimum is between 17° and 22°C. Variation in occurrence is closely related to seasonal and climatic changes in surface temperature and thermocline. Juveniles and small adults school at the surface in mono-species groups or mixed with other tunas, may be associated with floating objects. Adults stay in deeper waters. Adults at least 2x a year with spawning occurring throughout the year, a peak can be seen in Summer months. Eggs and larvae are pelagic. Feed on a wide variety of fishes, cephalopods and crustaceans during the day and at night Meat is highly prized and processed into sashimi in Japan. Marketed mainly canned or frozen but also sold fresh

IUCN Red List Status → Vulnerable (VU)

Thunnus tonggol/ Longtail tuna



Classification / Names

Actinopterygii > [Perciformes](#) > [Scombridae](#) > Scombrinae > Thunnus tonggol

Size / Weight / Age

Max length : 145 cm; common length : 70.0 cm; Max published weight: 35.9 kg

Environment

Marine; pelagic-neritic; oceanodromous; depth range 10 - ? m

Short description

- [Vertebrae](#): 39.
- A small species, deepest near the middle of the first dorsal fin base.
- The second dorsal fin is higher than the first dorsal fin; the pectoral fins are short to moderately long;
- Swim bladder is absent or rudimentary.
- Lower sides and belly silvery white with colorless elongate oval spots arranged in horizontally oriented rows. The dorsal, pectoral and pelvic fins are blackish; the tip of the second dorsal and anal fins are washed with yellow; the anal fin is silvery; the dorsal and anal finlets are yellow with grayish margins; the caudal fin is blackish, with streaks of yellow green.

Biology


Predominantly neritic species avoiding very turbid waters and areas with reduced salinity such as estuaries. May form schools of varying size. Feeds on a variety of fishes, cephalopods, and crustaceans. Marketed mainly fresh and dried salted but also smoked, canned and frozen

IUCN Red List Status → Not Evaluated (NE)

Reference Key

Species	Markings on lower body	Markings on upper body	Pectoral fin	Caudal fin
Dogtooth tuna	Silver in color, no lines or spots	Brilliant blue-black, no lines or spots	Normal	Forked, not white
Skipjack tuna	Silver with 4-6 dark bands	Dark purple blue, no markings	Very short and broad	Forked, not white
Albacore	None	None	Long, extends beyond anal fin	Forked, white
Yellowfin	Chains of white streaks and spots (20+)	Yellow/gold band on sides, fades at death	Long, extends beyond origin of 2 nd dorsal fin	Forked, not white, distinct groove at centre
Bigeye	None	None	Reaches origin of 2 nd dorsal fin	Forked, not white
Longtail	Silver white with colorless	None	Blackish	Forked, not white, blackish

Reference Key

Species	Fork length	Max weight	Finlets	Other important points to note
Dogtooth tuna	190cm	131kg	Dorsal 6-7 Ventral 6-6	Lateral line very curved
Skipjack tuna	80cm	34.5Kg	Dusky color Dorsal 7-9 Ventral 7-8	
Albacore	100cm	60.3 Kg	Dorsal 7-10 Ventral 7-10	Anterior spines much higher than posterior
Yellowfin	150cm	200Kg	Dorsal 8-10 Ventral 7-10 Yellow with very faint black margin	2 nd dorsal and anal fin very long
Bigeye	180cm	210Kg	Dorsal 8-9 Ventral 7-8 Yellow with thick black margin	Upper and lower colors separated by metallic blue line

Specific Differences Between Yellowfin and Bigeye Juveniles

Body Markings

Yellowfin

- Conspicuous pattern of closely spaced silvery lines
- Solid lines alternate with rows of fainter dots
- This line pattern described is present from tail, forward to beneath the pectoral fin and above the mid-lateral line



Bigeye

- Irregular, vertical and widely spaced white lines or marks
- Some dots in line format are present but are irregular
- Line pattern irregular, broken and confined mostly to below the mid-lateral line.



Body shape

Yellowfin

- Body elongate, long tail
- Body relatively flat between the 2nd dorsal and the caudal fin and between anal and caudal fin

Bigeye

- Body is deep and rounded
- Body outline rounded creating a smooth ventral and dorsal arc between snout and caudal keel



Head and eye shape

Yellowfin

- Shorter head length and depth vs. fork length than bigeye
- Smaller eye diameter compared to bigeye of same fork length

Bigeye

- Greater head length and depth vs. fork length than Yellowfin
- Greater eye diameter compared to Yellowfin of the same fork length

Pectoral fin characteristics

Yellowfin

- pectoral fin short, extending to base of 2nd dorsal fin
- Pectoral fin thicker, stiff and blade like (when compared to bigeye)

Bigeye

- Pectoral fin long, extending beyond the 2nd dorsal fin base
- It ends in a thin point which is flexible and often curves downward

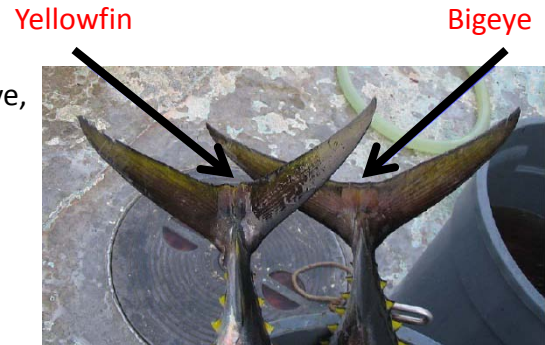
Caudal fin characteristics

Yellowfin

- Central portion of tail fork forms a distinct groove, with 2 raised ridges on either side of the groove

Bigeye

- Central portion of tail fork forms a flat or very faint crescent shape. 2 inconspicuous mounds may be present



Coloration

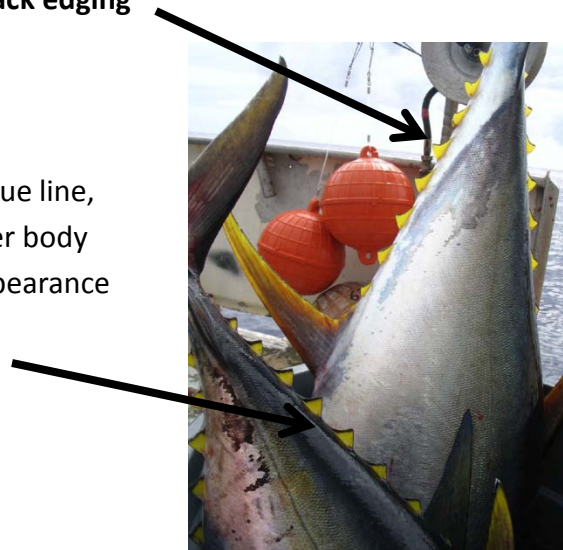
Important to note is: after death color fades very quickly and thus both species will quickly appear similar in color.

Yellowfin

- Fresh Yellowfin have a bright yellow mid-lateral line
- Dark black of the top may be separated from the lower golden by a thin blue band (not always present)
- Fins are yellow to yellowish with the anal fin sometimes silver
- Flanks and belly are silvery white
- **Bright yellow finlets with no or very slight black edging**

Bigeye

- Golden/bronze mid-lateral line
- Dark black back edged with a bright metallic blue line, separating two distinct colors of back and lower body
- Fins dusky yellow, anal fin may have silvery appearance
- Caudal fin often dusky black
- Flanks and belly pearly white
- **Yellow finlets with a thick black edge present**



References

Itano, D.G., 2005. *A Handbook for the Identification of Yellowfin and Bigeye Tunas in Fresh Condition (v2)*. http://www.saltfish.net/Big_Eye_VS_Yellowfin_ID.pdf

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