

# **Photographic identification guide for non-target fish species taken in WCPO purse seine fisheries**



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## NOTE

The species included in this guide are the most commonly reported by-catch species recorded by observers on tuna purse seine vessels operating in the Western and Central Pacific Ocean. The guide was developed to assist in the training of observers operating within the WCPFC Convention Area.

Only the most commonly seen marlin and shark species encountered on purse seiners are depicted here. Other species of billfish, sharks, marine turtles and other finfish that may be seen on WCPO purse seiners should be positively identified using other identification manuals. Several are available such as those produced by the Secretariat of the Pacific Community, the WCPFC Scientific Committee and other observer programmes.

**Note:** All images are by the authors unless specifically credited otherwise. No images represented here may be reproduced separately from this handbook without express written consent of the authors.

The MS Powerpoint version of this ID guide can be made available to fisheries observer programs and agencies for training purposes by contacting the authors directly.



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Fishing Technology Specialist Working Group  
SWG-FT IP-7  
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The document can be downloaded from the Pelagic Fisheries Research Program ftp site. To access this site, mouse click on this link or paste into a web browser.

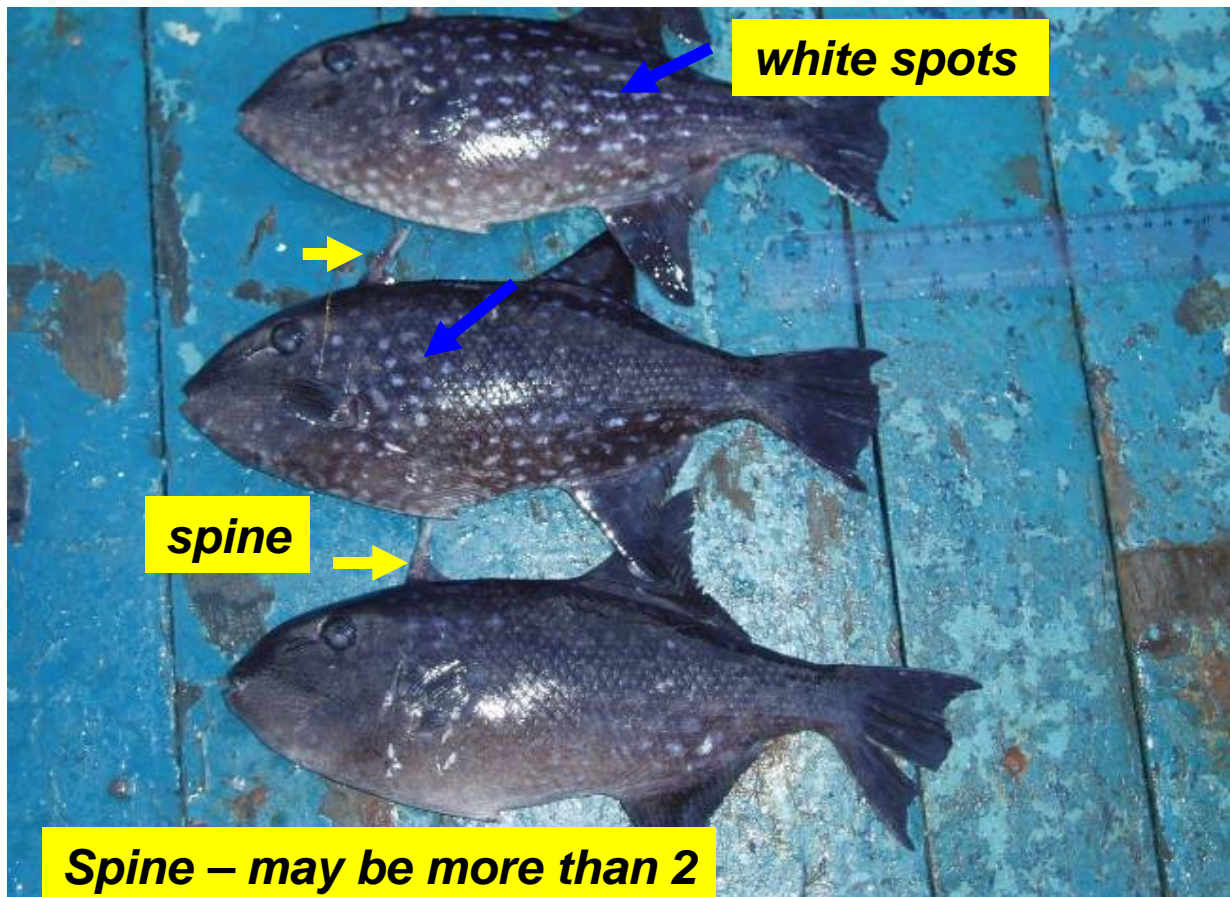
<ftp://ftp.soest.hawaii.edu/PFRP/itano>

or send a request to Siosifa Fukofuka [siosifaF@spc.int](mailto:siosifaF@spc.int) or  
David Itano <[dgi@hawaii.edu](mailto:dgi@hawaii.edu)>

## SPOTTED OCEANIC TRIGGER FISH

*Canthidermis maculatus*

FAO CODE: CNT





## SPOTTED OCEANIC TRIGGER FISH

*Canthidermis maculatus*

FAO CODE: CNT

*Frozen condition:*

- *White spots have disappeared*
- *Change in color - to dark black after weeks in the brine well*



## RAINBOW RUNNER

*Elagatis bipinnulata*

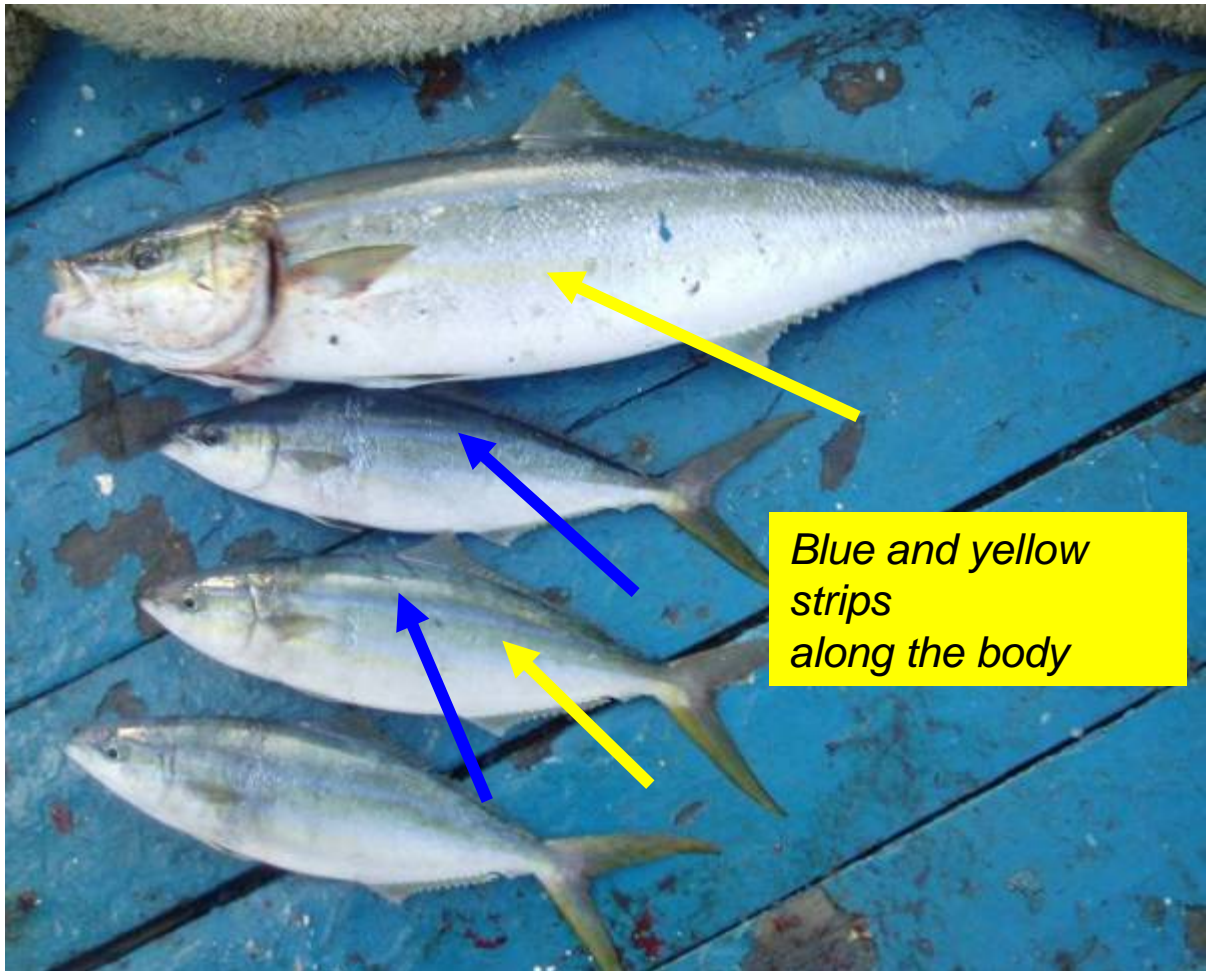
FAO CODE: RRU



## RAINBOW RUNNER

*Elagatis bipinnulata*

FAO CODE: RRU



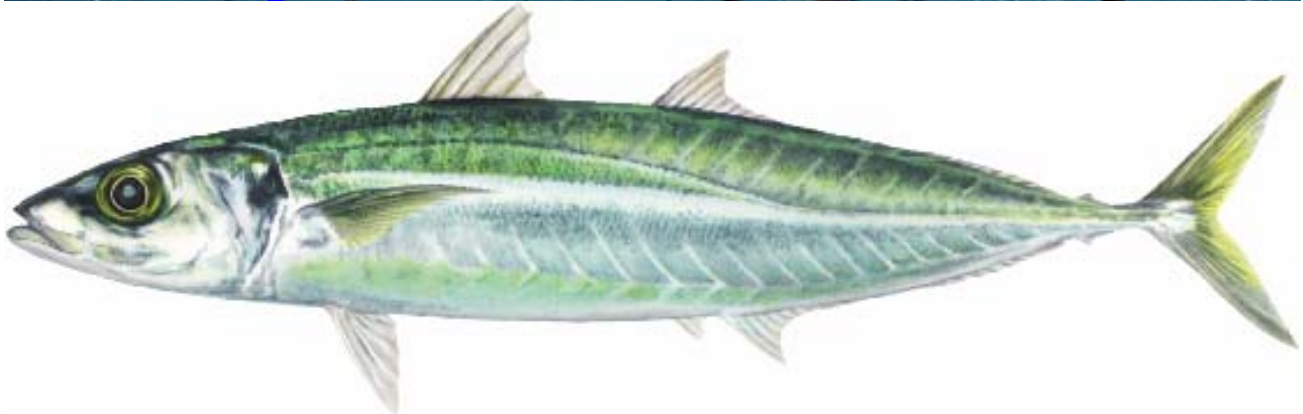


## MACKEREL SCAD

*Decapturus macarellus*

FAO CODE: MSD

- *Body elongate and slender*
- *Body color – black metallic green upper body*
- *Lower belly is silvery white*



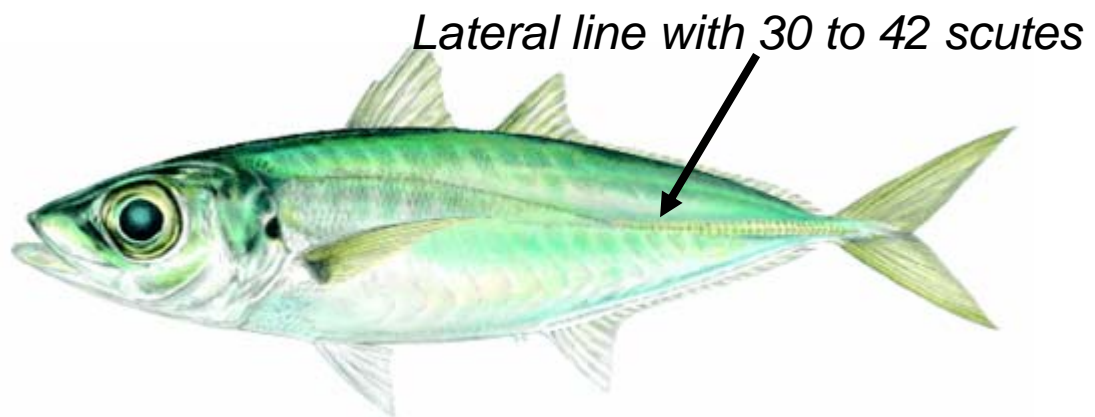


## **BIGEYE SCAD**

*Selar crumenophthalmus*

FAO CODE: BIS

- *Body elongate and compressed*
- *Body color metallic blue to bluish green*
- *Operculum with black spot*
- *Large eye*

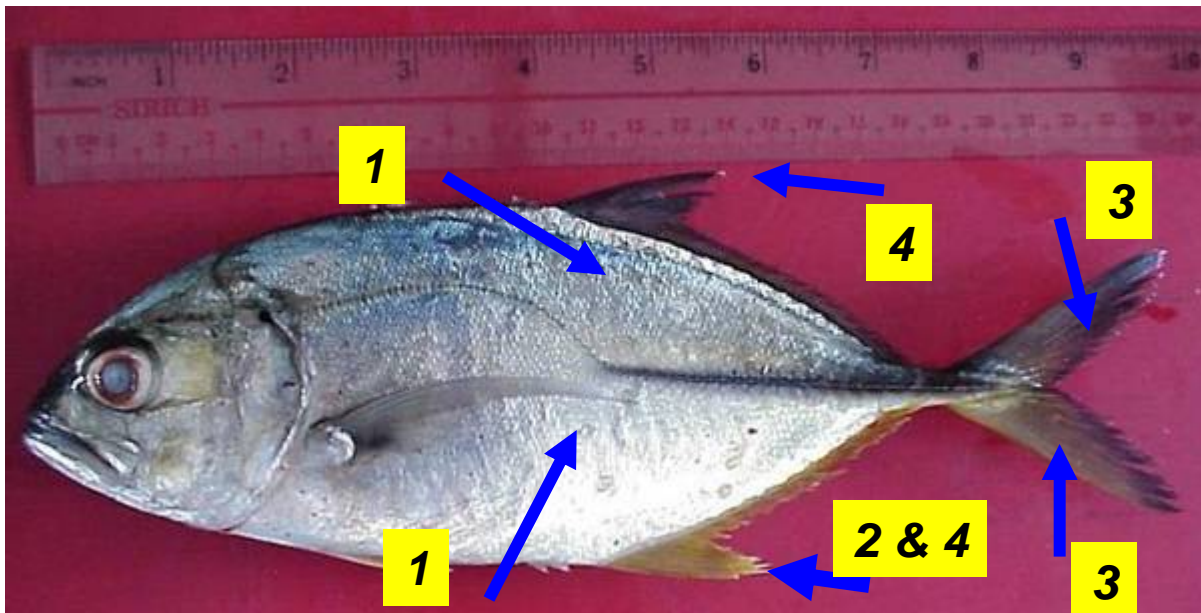


## **BIGEYE TREVALLY**

*Caranx sexfasciatus*

FAO CODE: CXS

1. Body color blue-green dorsally, silvery white lower body
2. Dorsal lobe (soft) and anal fin with white-tipped lobes.
3. Caudal fin yellowish to black.
4. Two detached spines with the anal fin
5. Live or fresh specimens golden with vertical bars



*Frozen specimen*

## GOLDEN TREVALLY

*Gnathanodon speciosus*

FAO CODE: GLT

- Body color - yellow to silvery
- broad and narrow black bars
- fins yellow.
- black spots on sides mainly adult.
- Pectorals falcate
- anal fin with 2 detached spines



Photo: J E. Randall



## GREATER AMBERJACK

*Seriola dumerili*

FAO CODE: AMB

- *Dark stripe through eye, especially in juveniles*
- *Greenish grey upper body*
- *Silvery white lower body*
- *Stripe along mid side of body and below around pectoral*



Photo: J E. Randall

## COTTONMOUTH JACK

*Uraspis secunda*

FAO CODE: USE

- *Inside of mouth and tongue are pure white in color*
- *Body coloration: sooty dark gray with several lighter vertical bars; fins are dark*



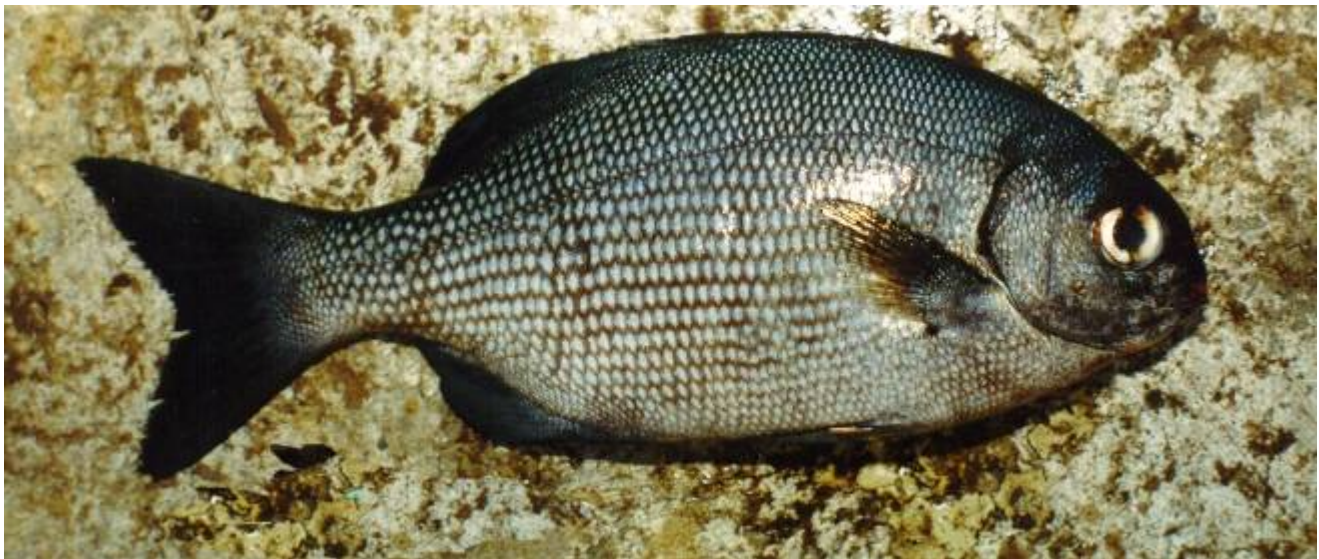
photo NOAA Fisheries

## BLUE SEA CHUB

*Kyhosus cinerascens*

FAO CODE: KYC

- Grey with dusky fins
- Soft parts of dorsal and anal fins elongated anteriorly
- Horizontal stripes made up of small light spots



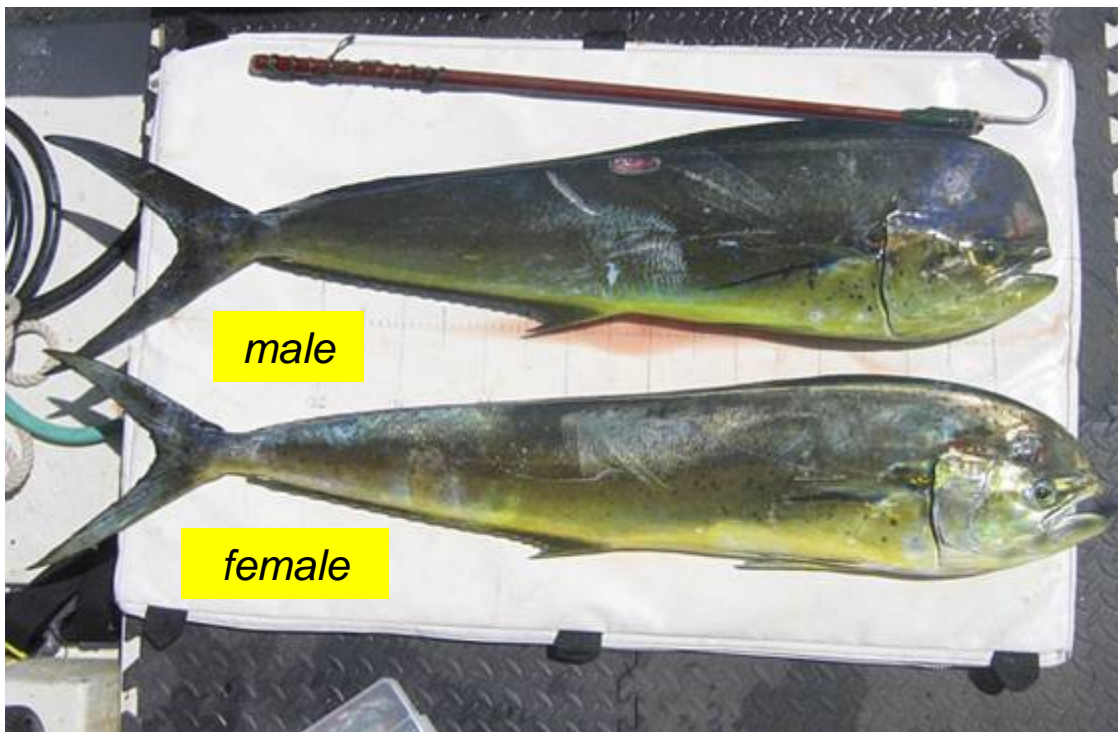


## DOLPHIN FISH

*Coryphaena hippurus*

FAO CODE: DOL

- Bright green blue on the upper body
- Bright yellow on lower body
- Distinct body shape and color
- Males have high forehead compared to rounded forehead of females



## GREAT BARACUDA

*Sphyraena barracuda*

FAO CODE: GBA

*Lower jaw extends in front of upper snout*

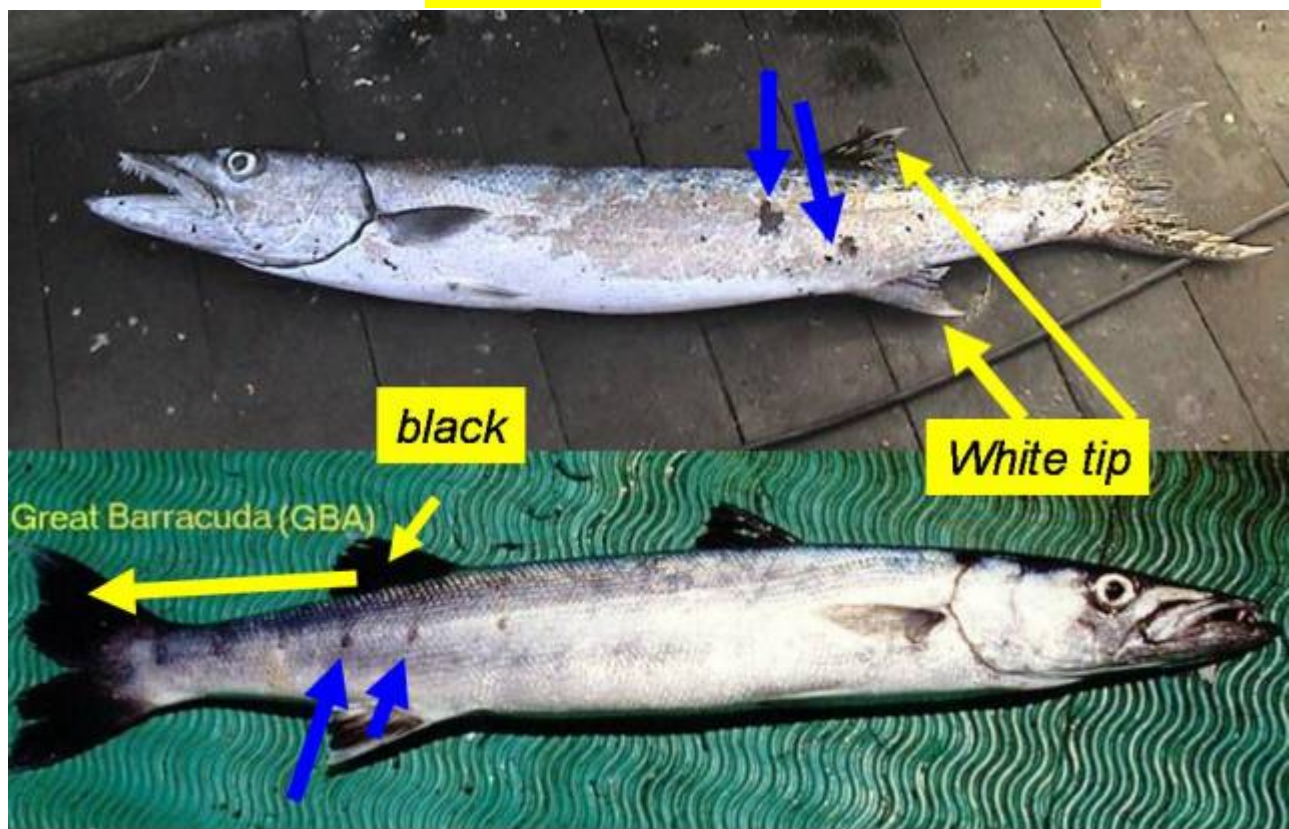
*Short dark bars on silvery sides, white belly*

*A few irregular dark blotches on sides*

*Large scales*

*Dark second dorsal, anal and tail fins with white tips*

*Black spots above the anal fin*



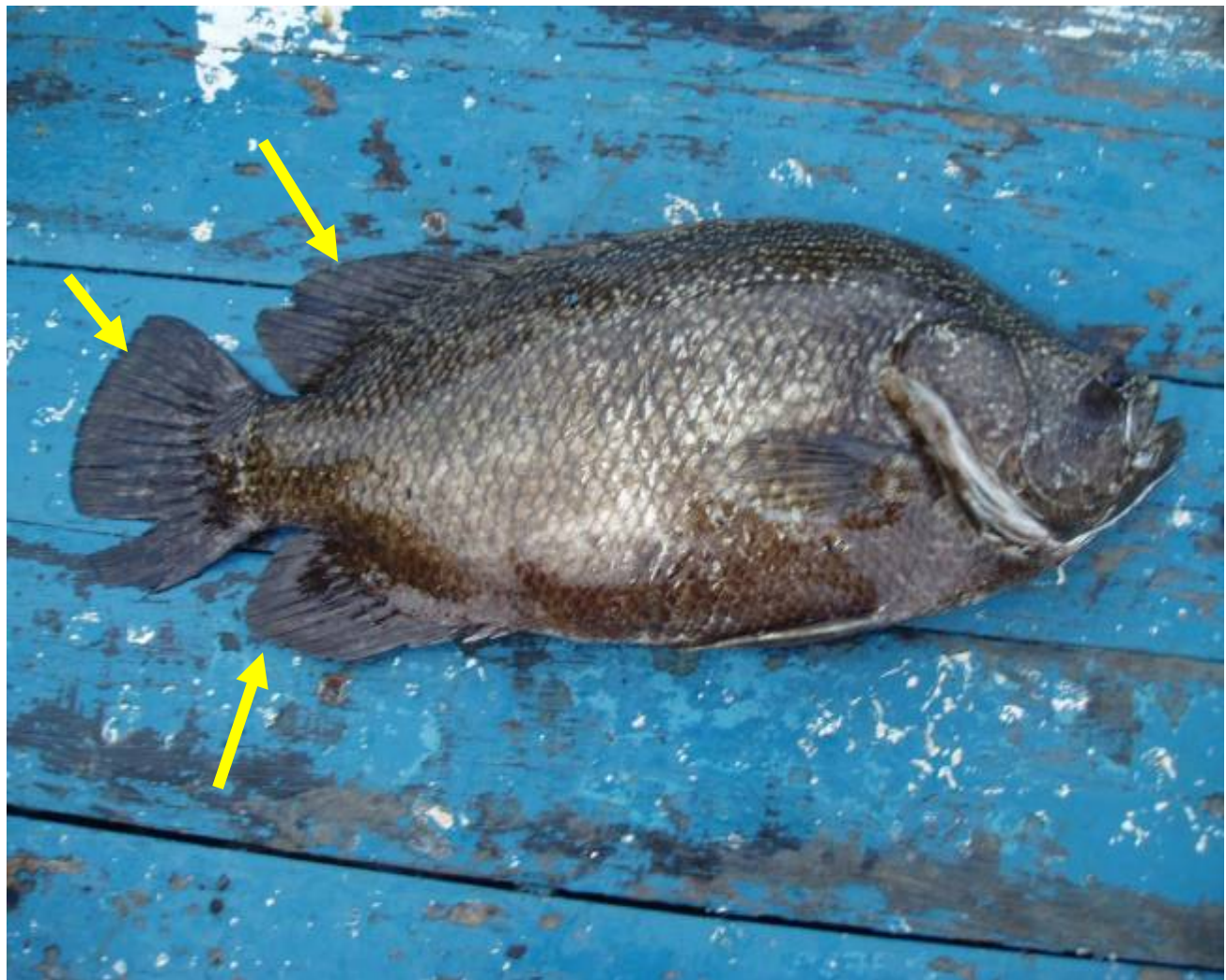


## TRIPLE TAIL

*Lobotes surinamensis*

FAO CODE: LOP

- Upper body dark brown to black.
- Lower body bronze with grey to white edges on scale
- Long and round dorsal and anal fin extend close to the tail
- Small eye close to mouth





## BATFISH

*Platax teira*

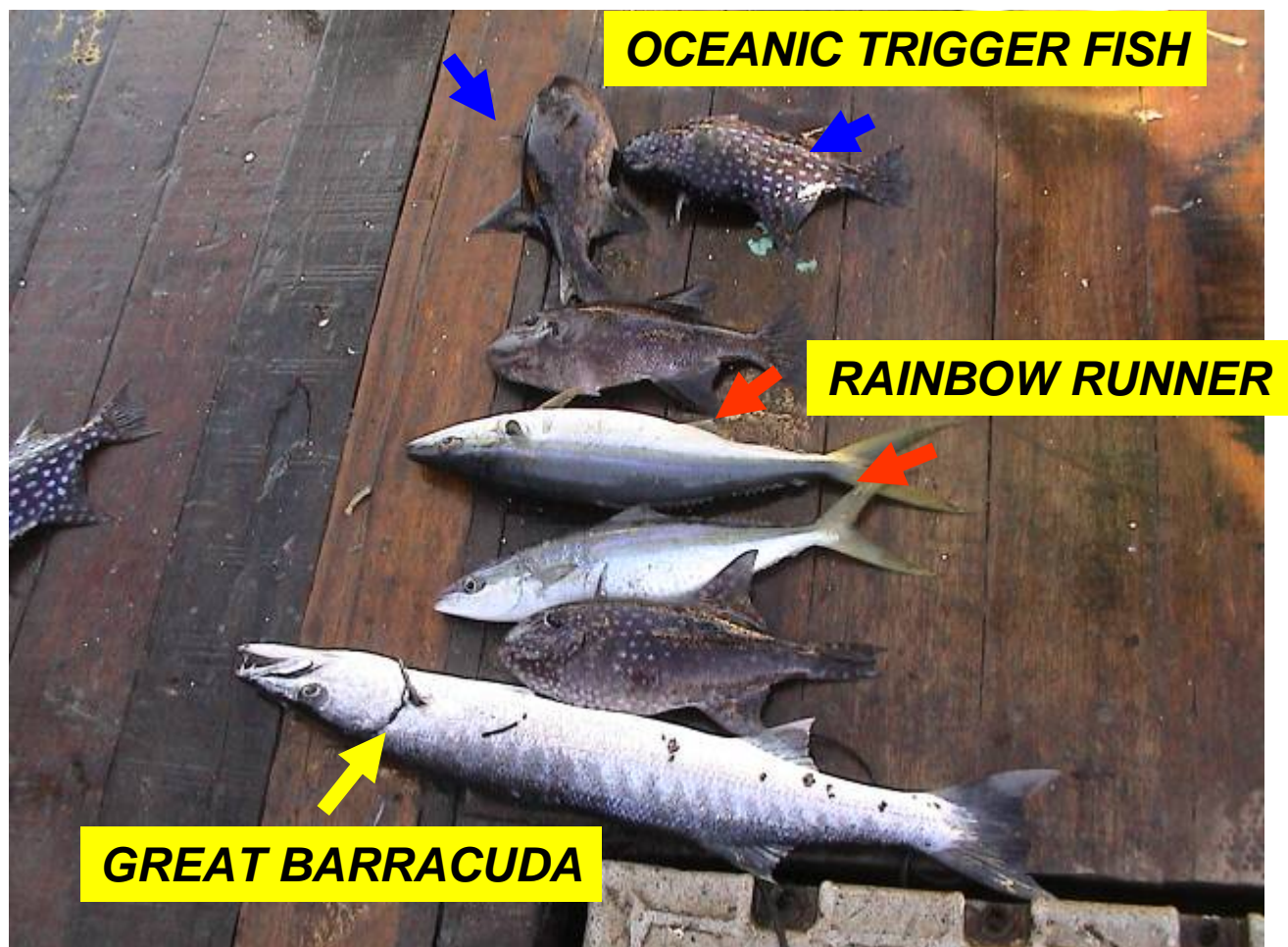
FAO CODE: BAO

- Body color yellowish silvery or dusky
- Distinctive flattened, oval shaped body
- A black bar through eye
- Dark bar from dorsal-fin origin across rear edge of operculum and pectoral-fin base to belly
- Color of pelvic fin is yellow



## Typical purse seine by-catch species

- OCEANIC TRIGGER FISH
- RAINBOW RUNNER
- GREAT BARRACUDA





## Typical purse seine by-catch species

- **OCEANIC TRIGGER FISH**
- **MACKEREL SCAD**
- **BLUE SEA CHUB**





## BLUE MARLIN

*Makaira nigricans*

FAO CODE: BUM

*First dorsal fin height is  $\frac{1}{2}$  to  $\frac{3}{4}$  greatest body depth*

*Pectoral fins nearly straight, not sickle shaped*

*Second dorsal fin slightly posterior to second anal fin*

*Color blue-black on back and upper sides, white/silver below*

*Body thick in cross section with grayish-white meat*



photo NOAA Fisheries

## BLACK MARLIN

*Makaira indica*

FAO CODE: BLM

*First dorsal fin height is  $\frac{1}{2}$  or less of body depth*

*Pectoral fins sickle shaped and rigid; can not be folded flat to body*

*Second dorsal fin slightly in front of the second anal fin*

*Highly angled nape (area between bill and first dorsal fin)*

*Short, stout bill, round in cross section*

*Color is black to dark blue on dorsal surface, silvery-white to white below*

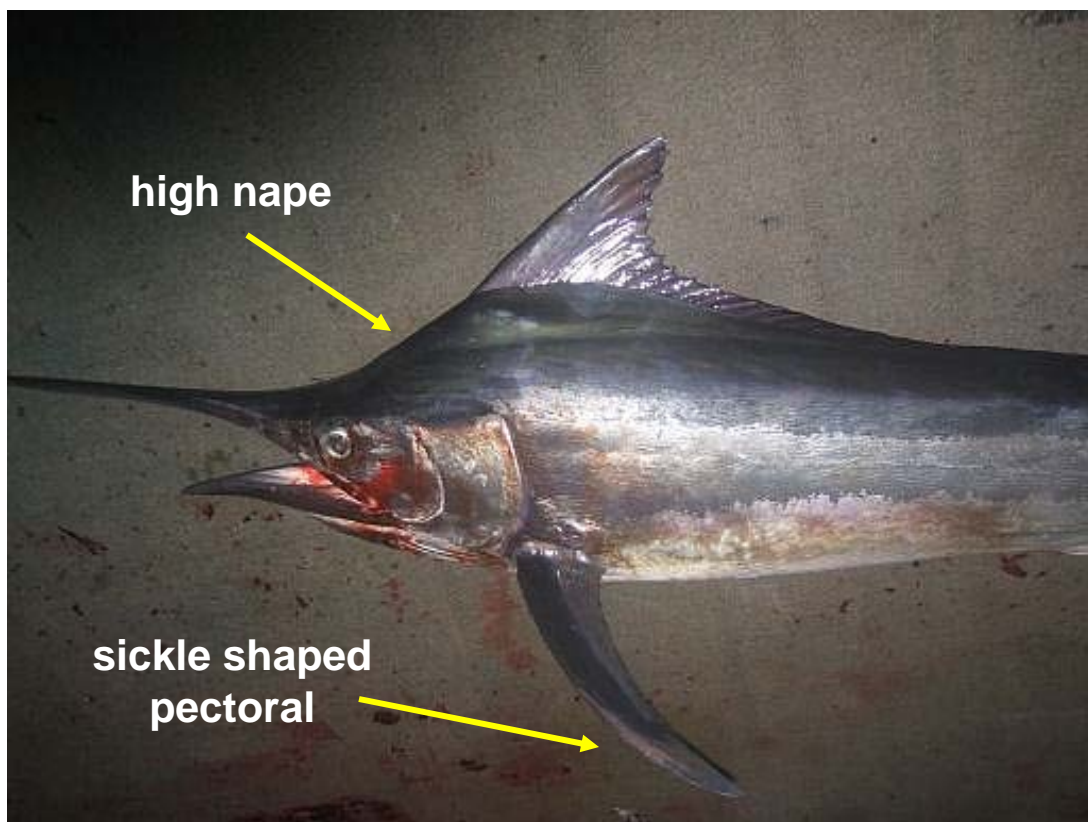


photo NOAA Fisheries

## BLACK MARLIN

*Makaira indica*

FAO CODE: BLM

### Note

*Low dorsal fin with rounded tip*

*Sickle shaped pectoral fins, rigid, can not be folded back*

*Second dorsal fin slightly in front of the second anal fin*



photo NOAA Fisheries



## STRIPED MARLIN

*Tetrapturus audax*

FAO CODE: MLS

Note: striped marlin are extremely very rare in tropical purse seine catch. All marlin can show stripes when fresh.

*Dorsal fin height equal to or greater than body depth*

*Dorsal fin long and thin, not as rigid as blue or black marlin*

*Body thin and flattened, not rounded as for blue or black marlin*

*Long, thin, sharp bill*

*Meat can be pinkish or orange*



photo NOAA Fisheries

## OCEANIC WHITETIP SHARK

*Carcharhinus longimanus*

FAO CODE: OCS

*Large rounded first dorsal and pectoral fins with white or mottled tips*

*Flattened head and rounded snout*

*Body color typically brown, whitish below*

*May have black markings on the tips of small fins*

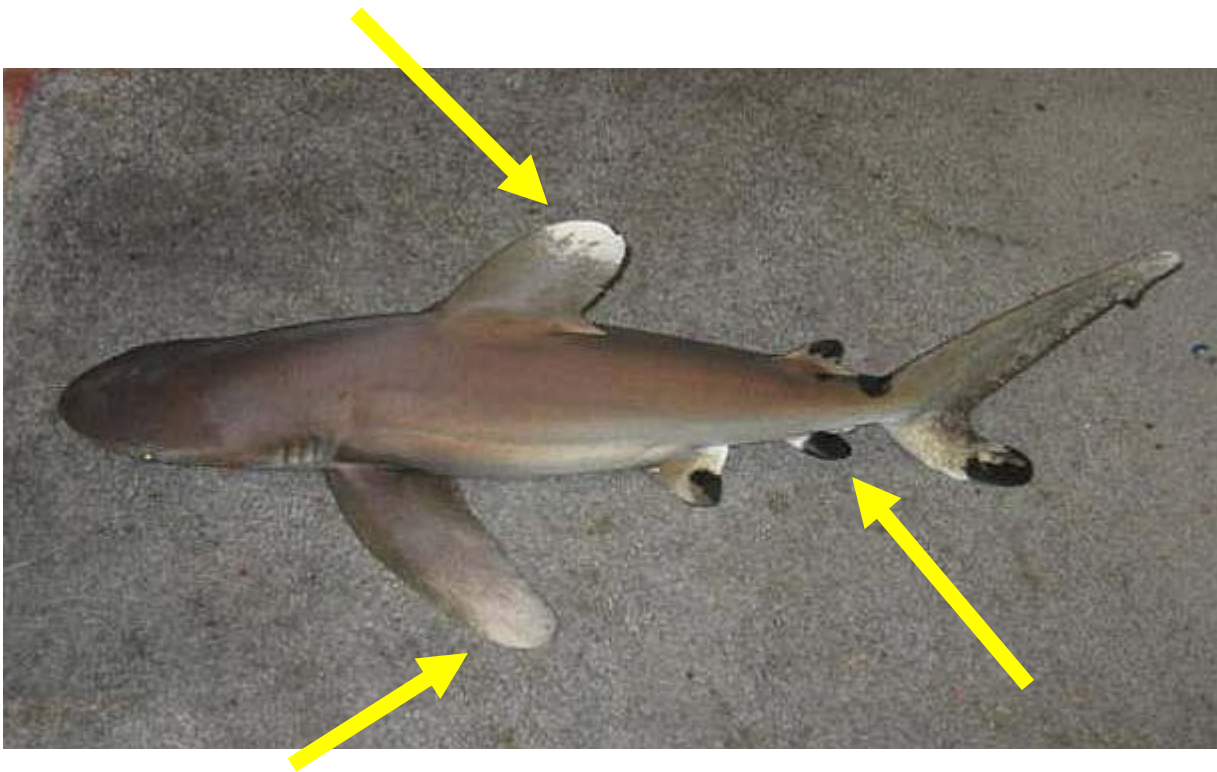


photo NOAA Fisheries

## SILKY SHARK

*Carcharhinus falciformis*

FAO CODE: FAL

Note: very common in purse seine sets, particularly on logs and FADs

*Small dorsal fin located behind pectoral fins*

*Distinct ridge between dorsal fins*

*Long low Interdorsal ridge*

*Long, free tips at rear of dorsal and second anal fins*

*Color copper-brown with white belly*

*Black markings on underside of pectoral fin tips*



photo NOAA Fisheries



**WAHOO***Acanthocibium solandri***FAO CODE: WAH**

*Snout as long as the head – see below. Up to 30 vertical bars*  
*Lower jaw and upper snout about equal when mouth closed*  
*Smooth skin with tiny scales*



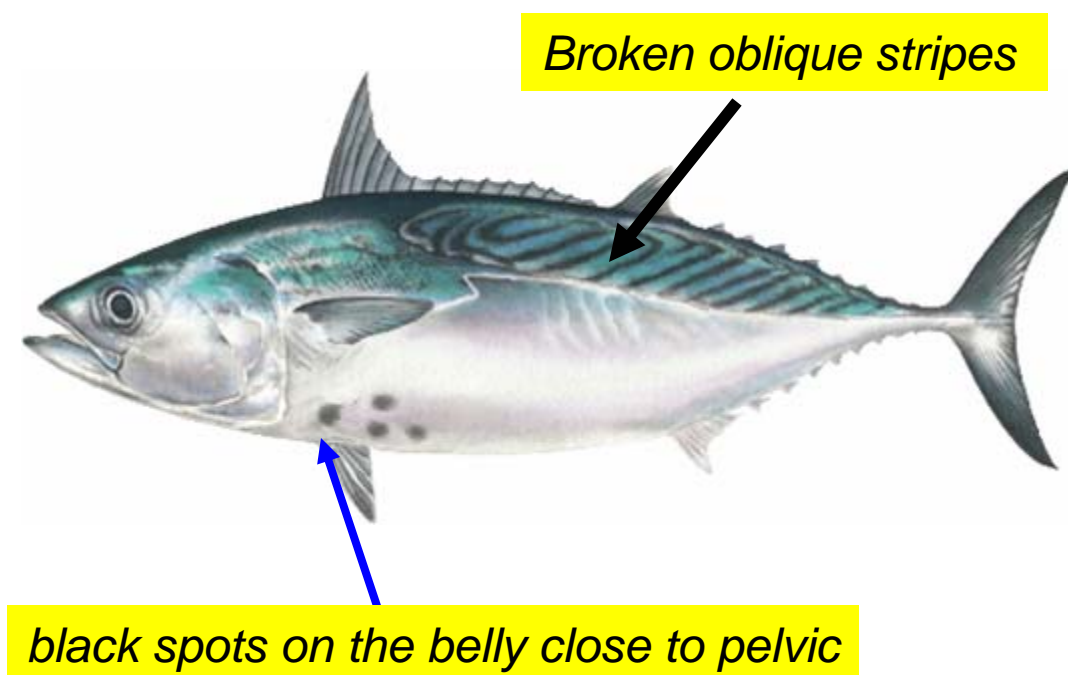
*photo NOAA Fisheries*



## KAWAKAWA

*Euthynnus affinis*

FAO CODE: KAW

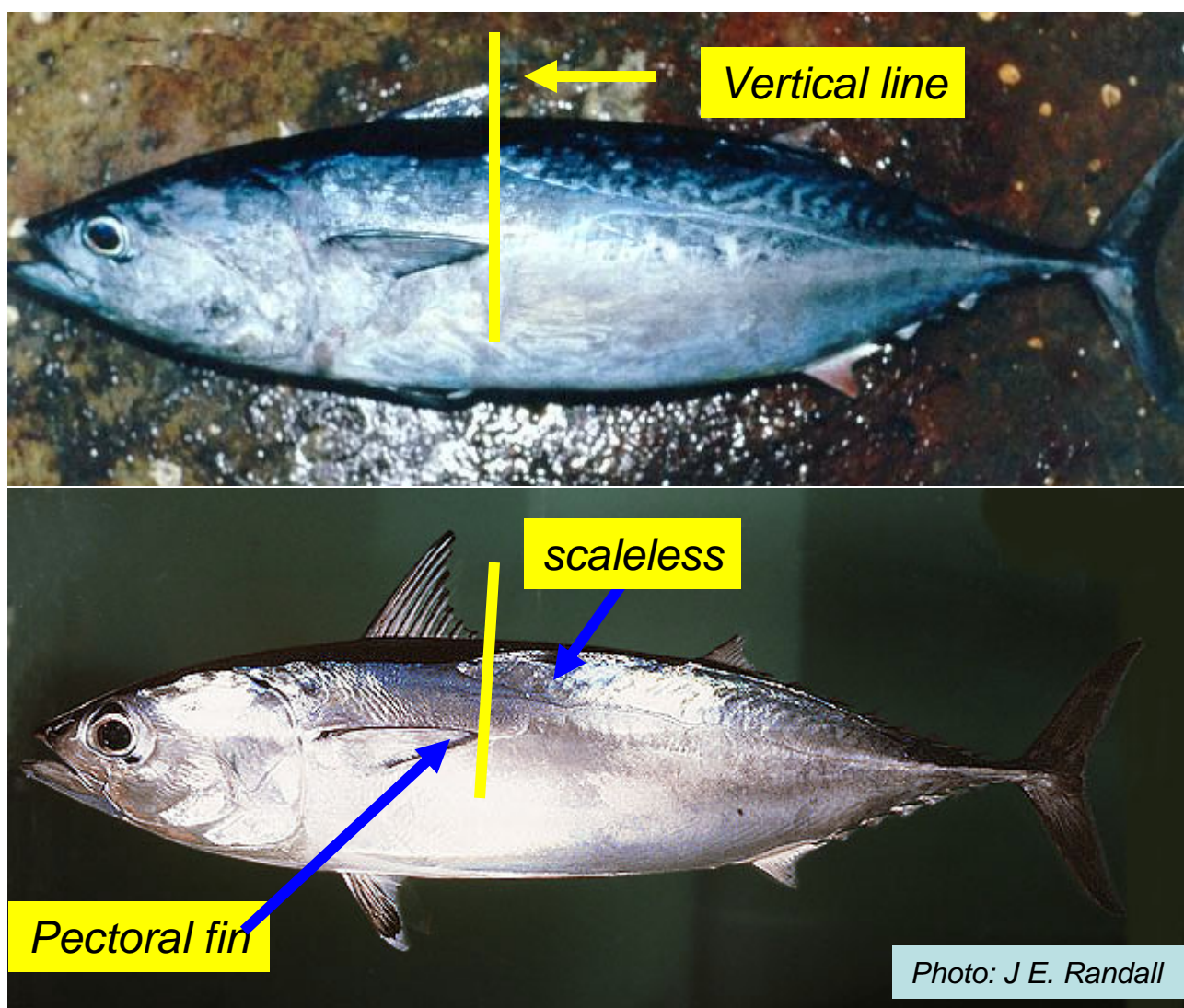


## FRIGATE TUNA

*Auxis thazard*

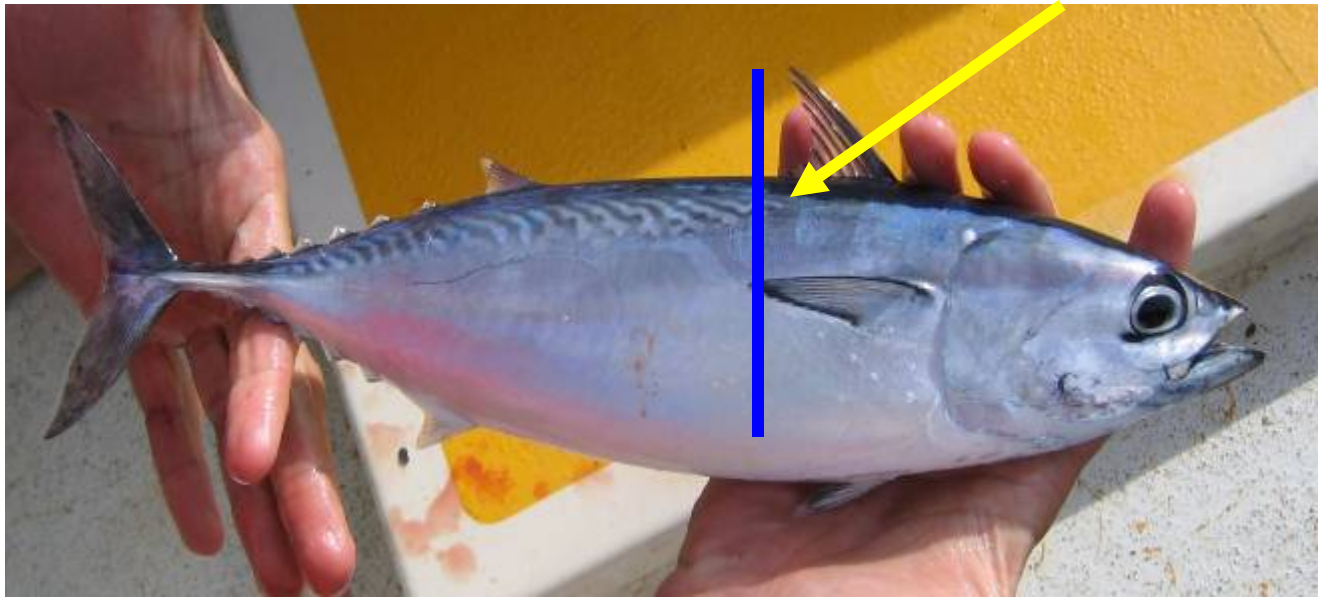
FAO CODE: FRI

*Short pectoral fins, but reaching past vertical line from anterior margin of scaleless area above corslet – see below.*





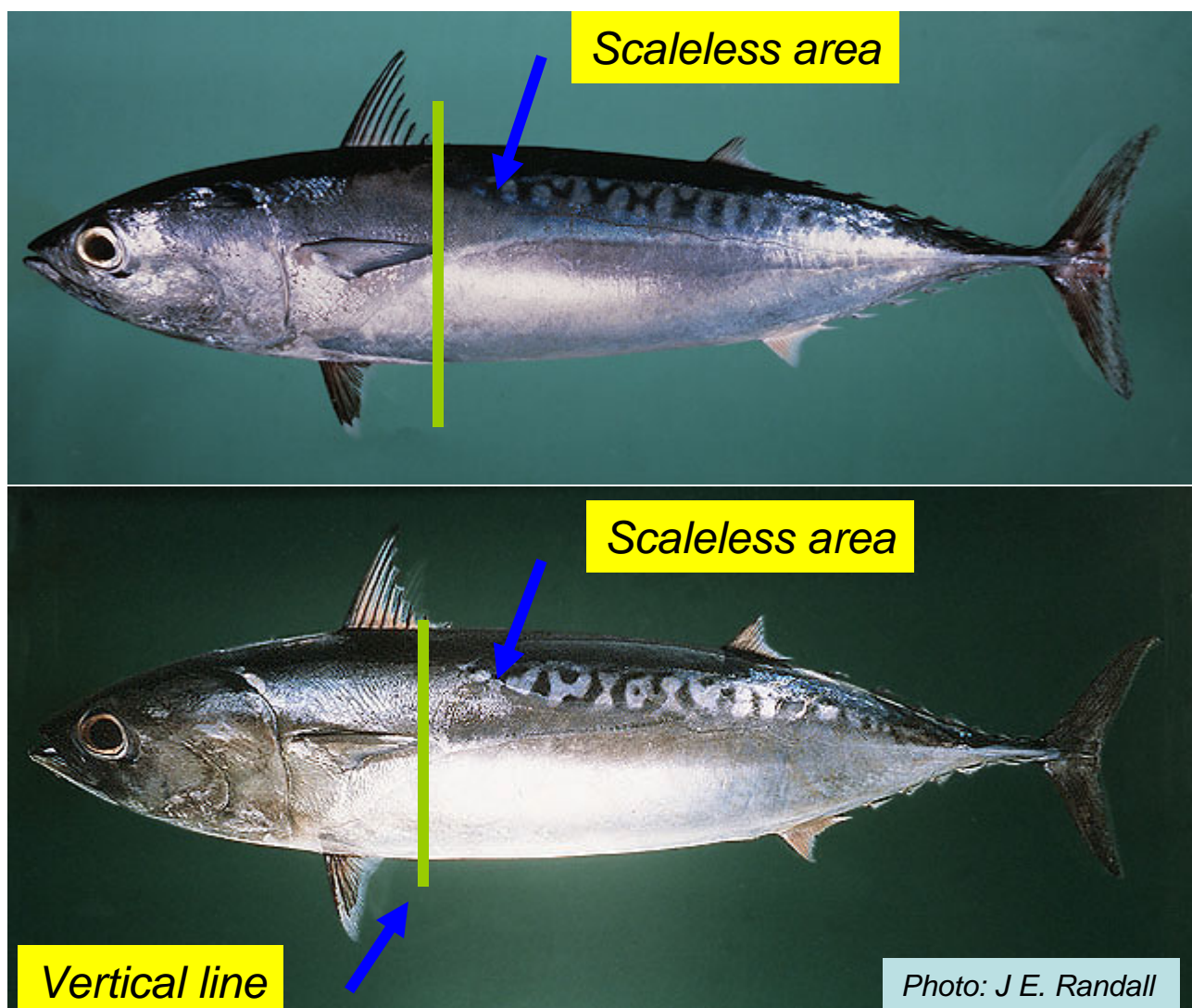
## FRIGATE TUNA



- *Short pectoral fins, but reaching past vertical line from anterior margin of scaleless area above corslet*

**Bullet Tuna***Auxis rochei***FAO CODE: BLT**

*Pectoral fins short, not reaching vertical line from anterior margin of scaleless area above corselet – see below*



## MIXED SMALL TUNA

1. Bullet tuna    2. Frigate tuna    3. Kawakawa



Photo – A D Lewis



**OCEAN ANCHOVY**  
*Stolephorus punctifer*

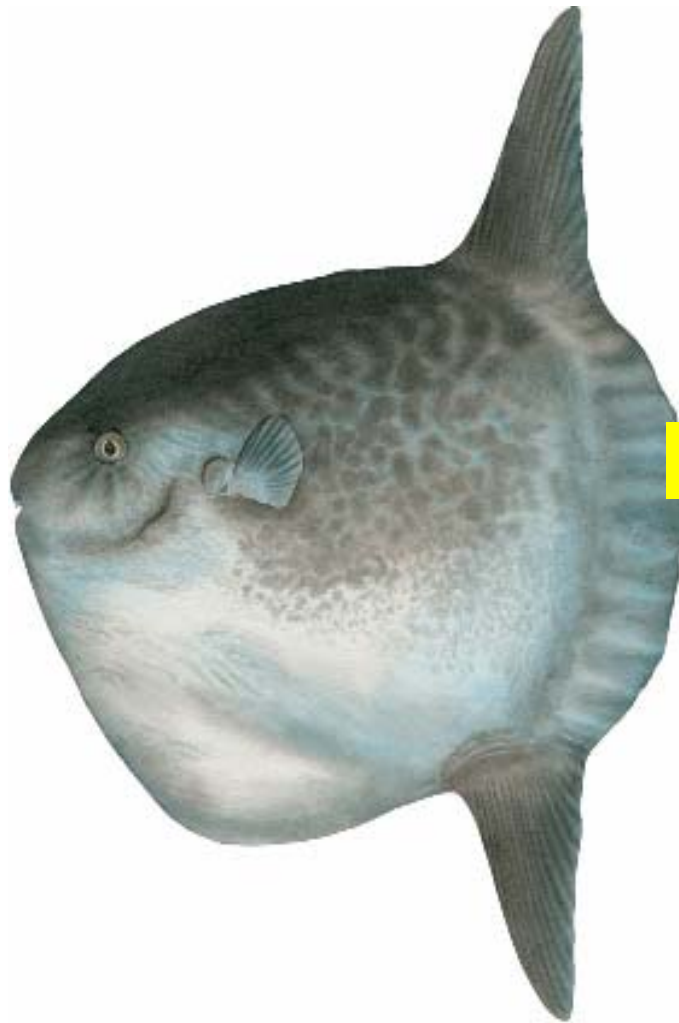


*Rounded snout, A very broad silver mid-lateral band with darker margins*

## OCEAN SUNFISH

*Mola mola*

FAO CODE: MOX



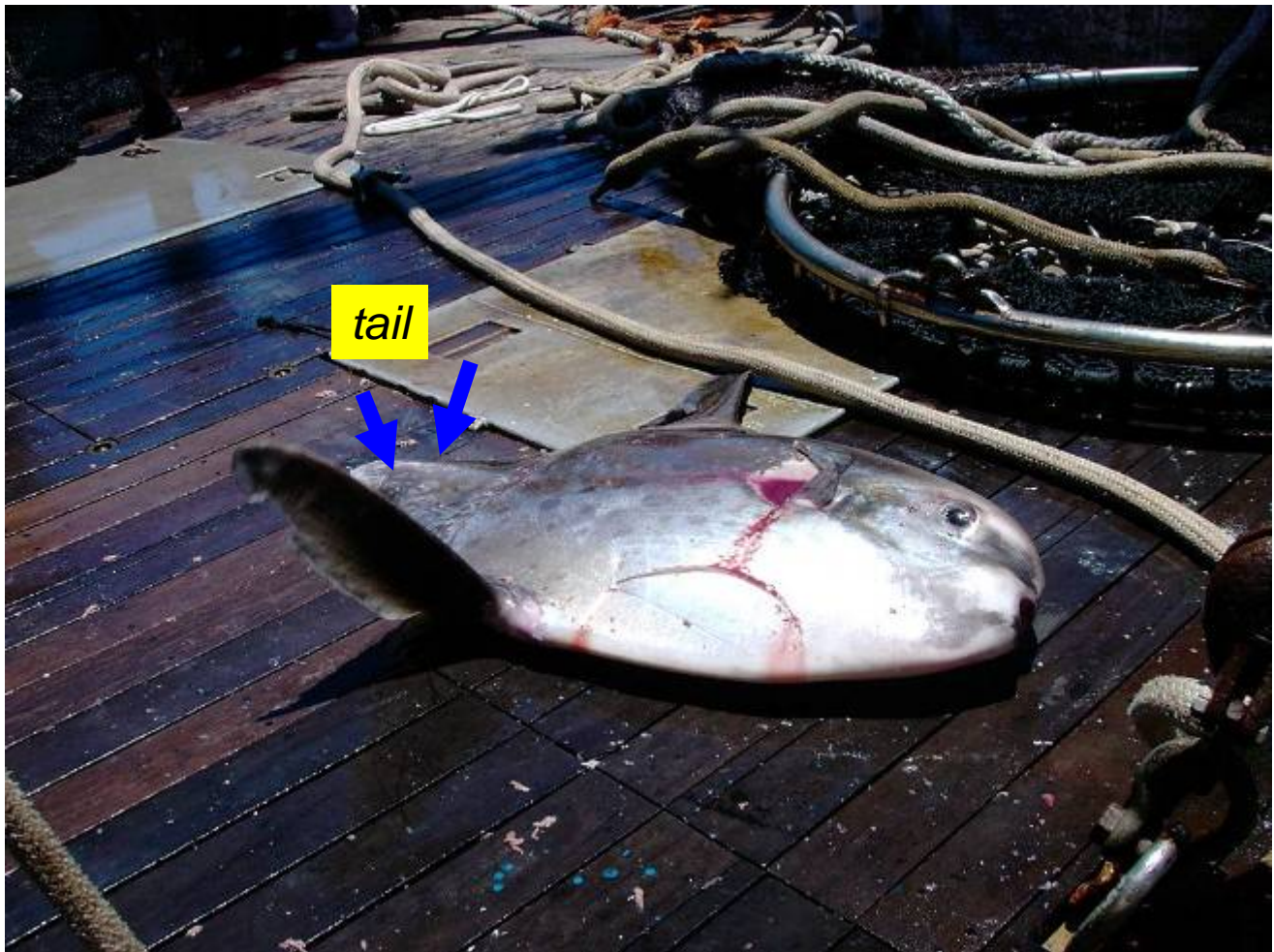
*No tail*

*Very distinct feature*

## SHARPTAIL SUNFISH

*Masturus lanceolatus*

FAO CODE: MRW



*Very distinct tail feature*



## OCEAN SUNFISH

*Mola mola*

FAO CODE: MOX



## SHARPTAIL SUNFISH

*Masturus lanceolatus*

FAO CODE: MRW



## GAINT MANTA RAY

*Manta birostris*

FAO CODE: RMB



photos: D. Golden



### Identifying characters

- Short and thin whip-like tail, usually lacks a spine
- Very large body (max. size 9.1m) with broad head projections on either side of mouth
- Color dark to black above, whitish below

## PELAGIC STING RAY

*Dasyatis violacea*

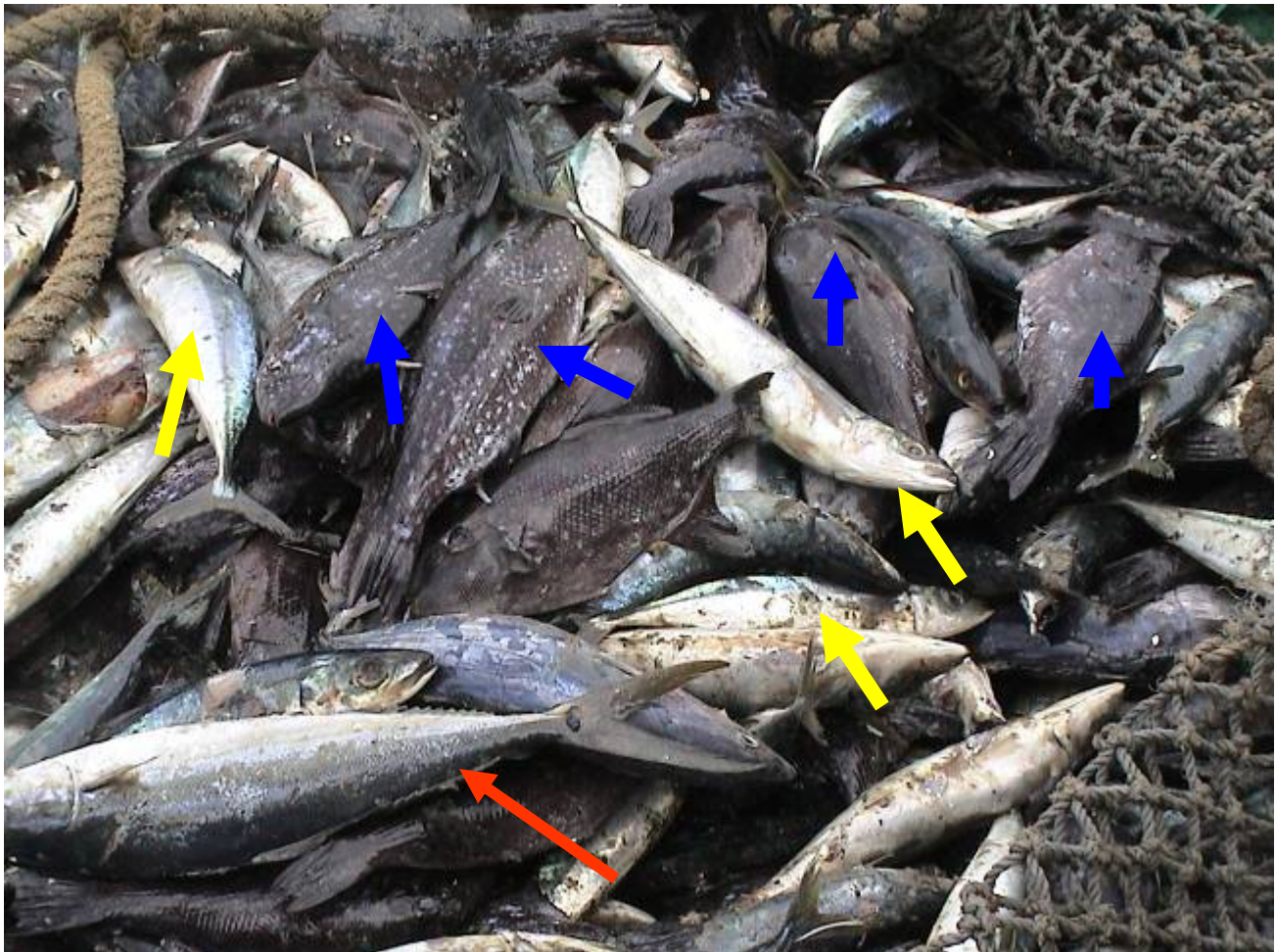
FAO CODE: PLS





## FROZEN PURSE SEINE BY-CATCH

- MACKEREL SCADS (yellow arrow)
- OCEANIC TRIGGER FISH (blue arrow)
- RAINBOW RUNNER (red arrow)



## SORTED DISCARDS ON PURSE SEINER





## **FROZEN NON-TARGET CATCH SORTED OUT DURING UNLOADING**

- MACKEREL SCADS
- OCEANIC TRIGGER FISH
- RAINBOW RUNNER





## ENGLISH

OCEANIC TRIGGER FISH  
RAINBOW RUNNER  
MACKEREL SCAD  
BIGEYE SCAD  
BIGEYE TREVALLY  
GOLDEN TREVALLY  
GREATER AMBERJACK  
COTTONMOUTH JACK  
BLUE SEA CHUB  
DOLPHIN FISH  
GREAT BARACUDA  
TRIPLE TAIL  
BATFISH  
BLUE MARLIN  
BLACK MARLIN  
STRIPED MARLIN  
OCEANIC WHITETIP SHARK  
SILKY SHARK  
WAHOO  
KAWAKAWA  
FRIGATE TUNA  
BULLET TUNA  
OCEAN ANCHOVY  
OCEAN SUNFISH  
SHARPTAIL SUNFISH  
GAINT MANTA RAY  
PELAGIC STING RAY

## Scientific

*Canthidermis maculatus*  
*Elagatis bipinnulata*  
*Decapturus macarellus*  
*Selar crumenophthalmus*  
*Caranx sexfasciatus*  
*Gnathanodon speciosus*  
*Seriola dumerili*  
*Uraspis secunda*  
*Kyhosus cinerascens*  
*Coryphaena hippurus*  
*Sphyraena barracuda*  
*Lobotes surinamensis*  
*Platax teira*  
*Makaira nigricans*  
*Makaira indica*  
*Tetrapturus audax*  
*Carcharhinus longimanus*  
*Carcharhinus falciformis*  
*Acanthocibium solandri*  
*Euthynnus affinis*  
*Auxis thazard*  
*Auxis rochei*  
*Encrasicholina puntifer*  
*Mola mola*  
*Masturus lanceolatus*  
*Manta birostris*  
*Dasyatis violacea*

