



**SCIENTIFIC COMMITTEE
THIRD REGULAR SESSION**

13-24 August 2007
Honolulu, United States of America

**PHOTOGRAPHIC IDENTIFICATION GUIDE FOR
NON-TARGET FISH SPECIES TAKEN IN WCPO PURSE SEINE FISHERIES**

WCPFC-SC3-FT SWG/IP-7

SIOSIFA FUKOFUKA¹ AND DAVID G. ITANO²

¹ SPC, Noumea, New Caledonia.

² PFRP, University of Hawaii, Honolulu, Hawaii, USA.

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



Siosifa Fukofuka

Secretariat of the Pacific Community
Oceanic Fisheries Programme
Noumea, New Caledonia

David G Itano

Pelagic Fisheries Research Program
University of Hawaii, JIMAR
Honolulu, Hawaii, USA

Version 1

August 2007

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.



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

Siosifa Fukofuka
Secretariat of the Pacific Community
Oceanic Fisheries Programme
Noumea, New Caledonia

David G Itano
Pelagic Fisheries Research Program
University of Hawaii, JIMAR
Honolulu, Hawaii, USA

Scientific Committee
Third Regular Session
13-24 August 2007
Honolulu, Hawaii, USA
of the
Western and Central Pacific Fisheries Commission

Fishing Technology Specialist Working Group
SWG-FT IP-7
August 2007

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.

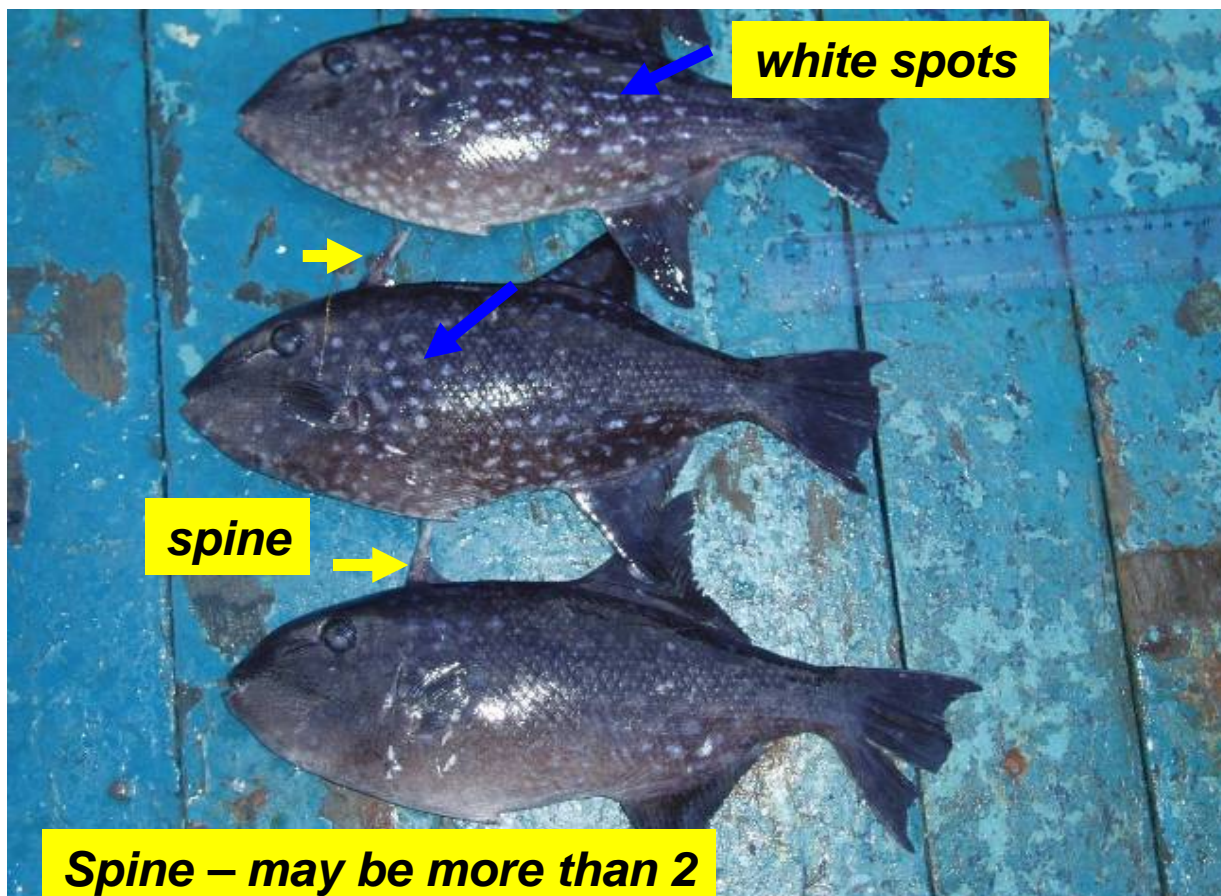
<ftp://ftp.soest.hawaii.edu/PFRP/itano>

or send a request to Siosifa Fukofuka siosifaF@spc.int or
David Itano <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

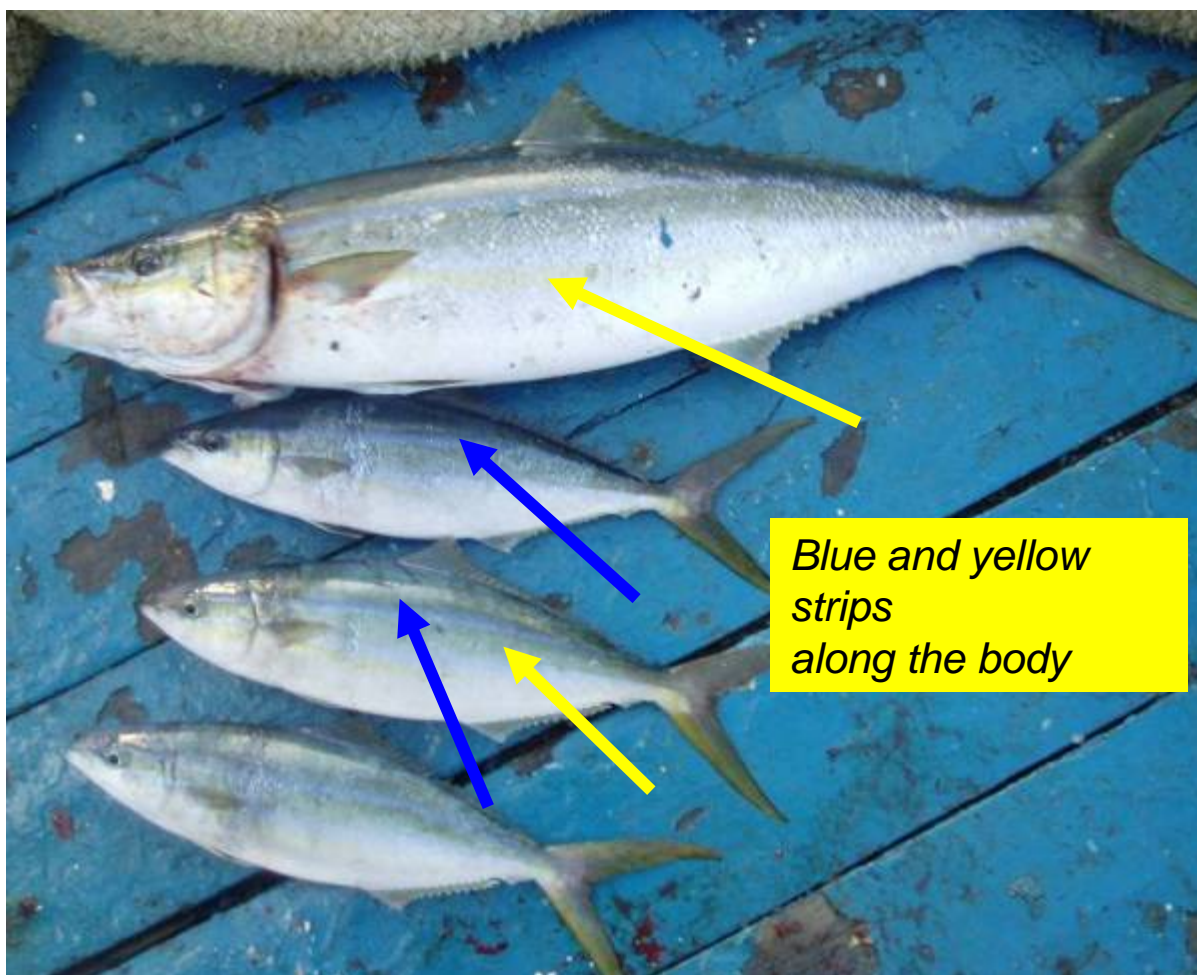
FAO CODE: RRU



RAINBOW RUNNER

Elagatis bipinnulata

FAO CODE: RRU

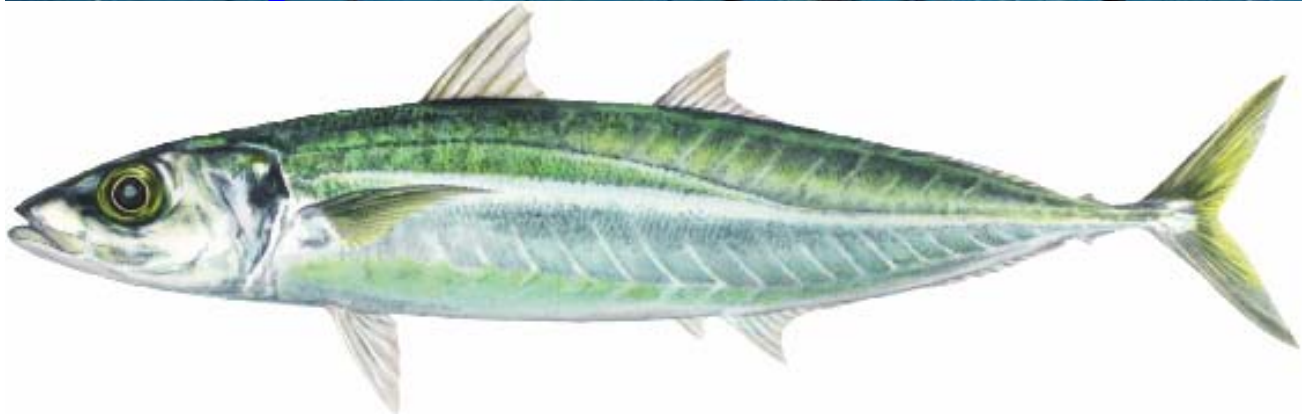


MACKEREL SCAD

Decapturus macarellus

FAO CODE: MSD

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

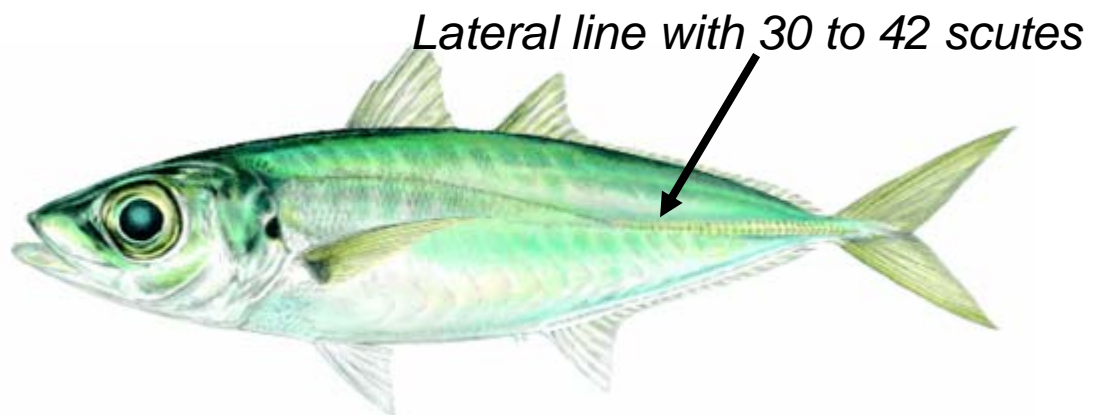


BIGEYE SCAD

Selar crumenophthalmus

FAO CODE: BIS

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

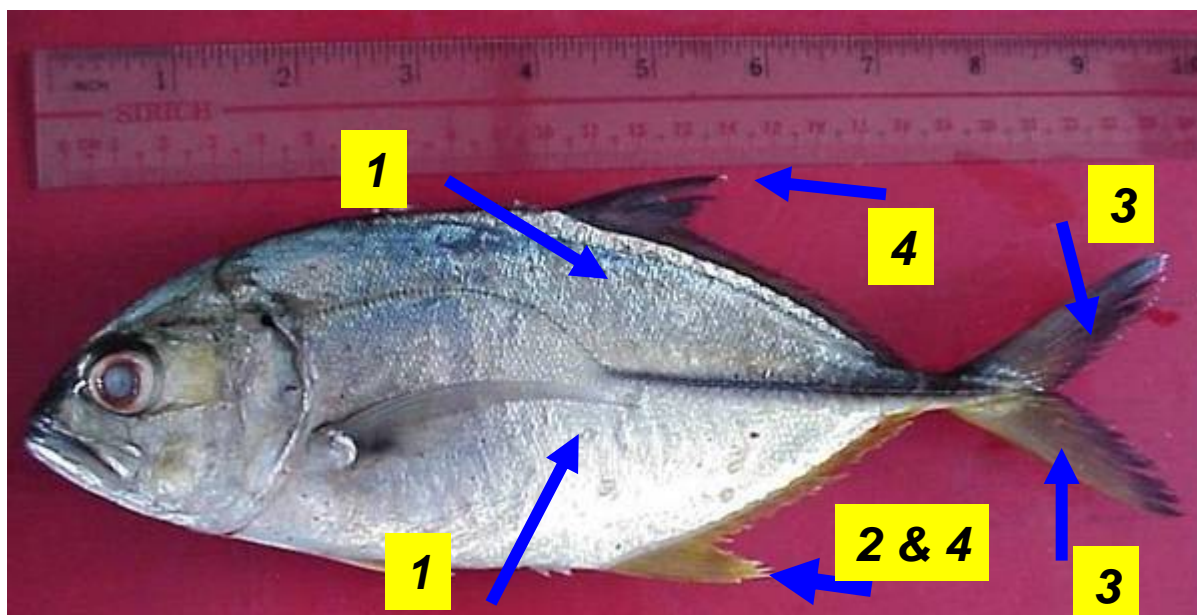


BIGEYE TREVALLY

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*



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*



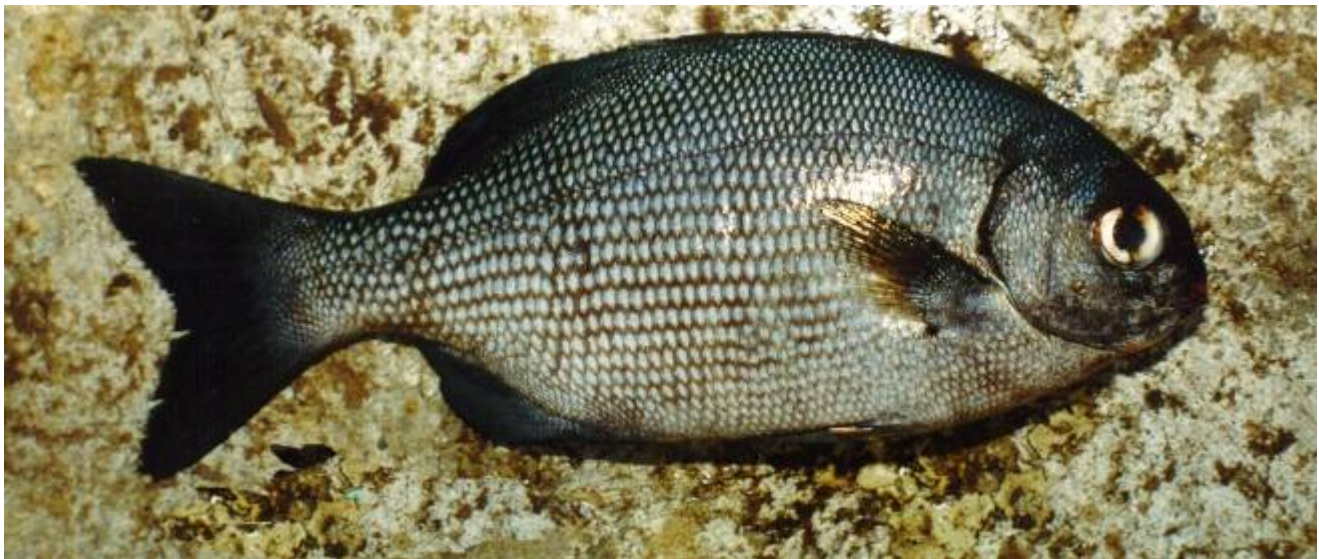
photo NOAA Fisheries

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

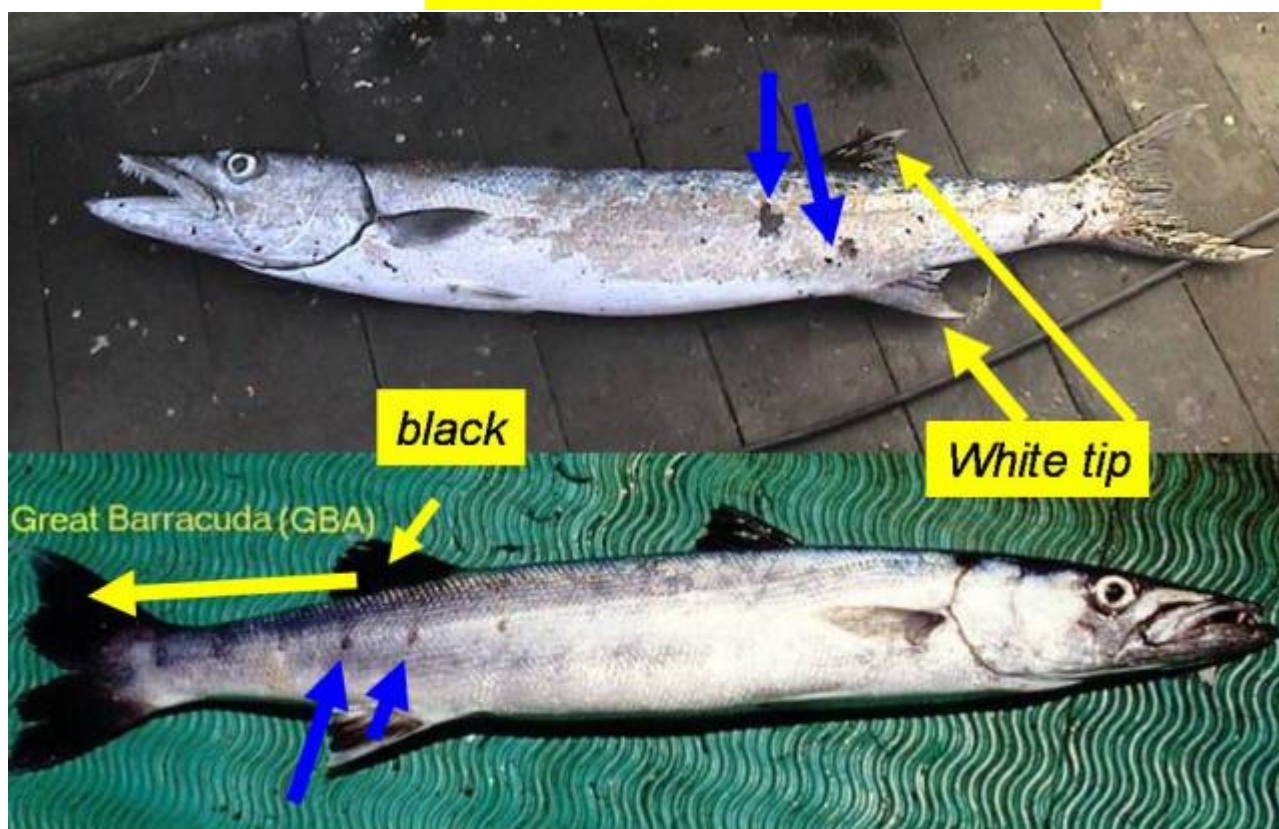
Short dark bars on silvery sides, white belly

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

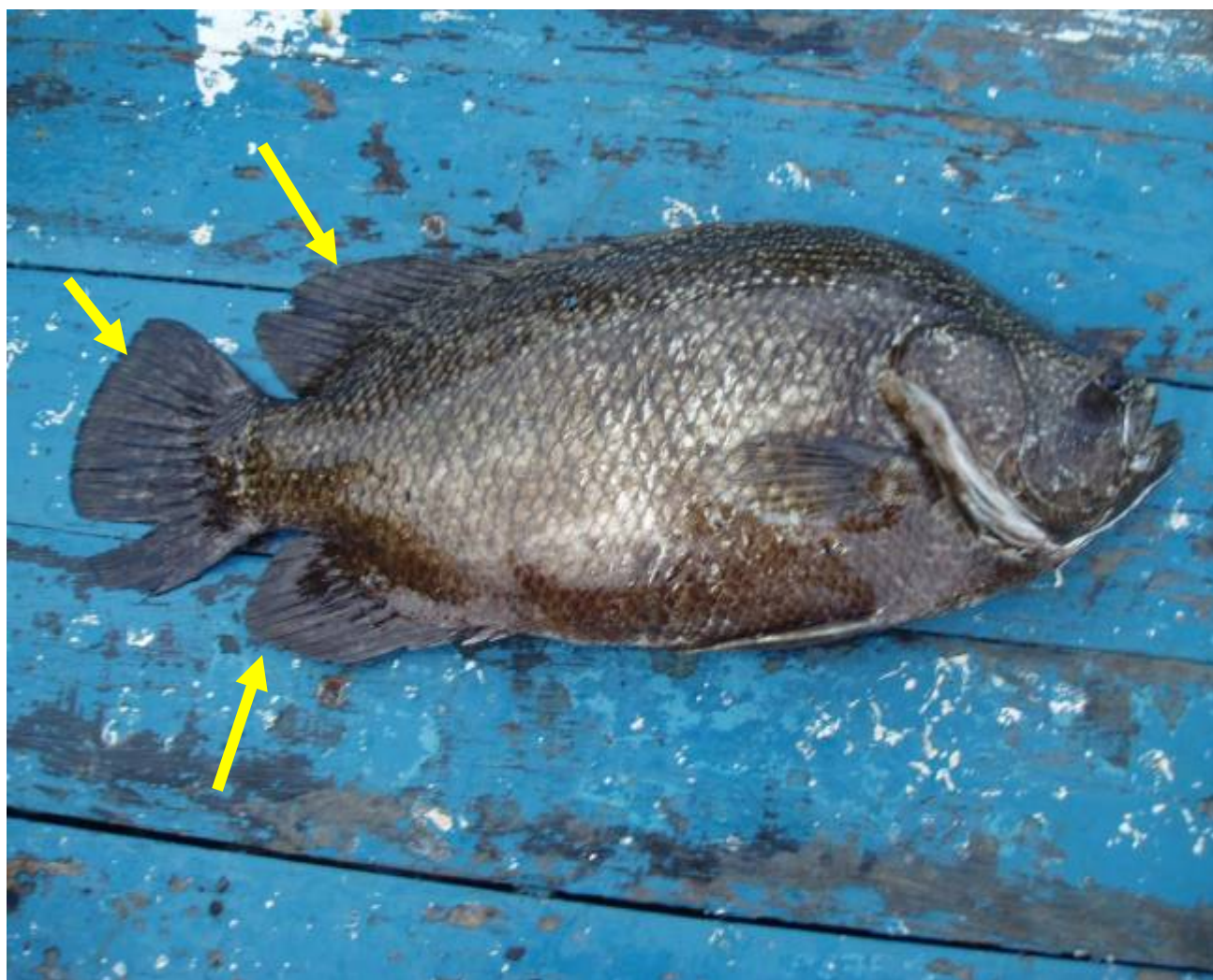


TRIPLE TAIL

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

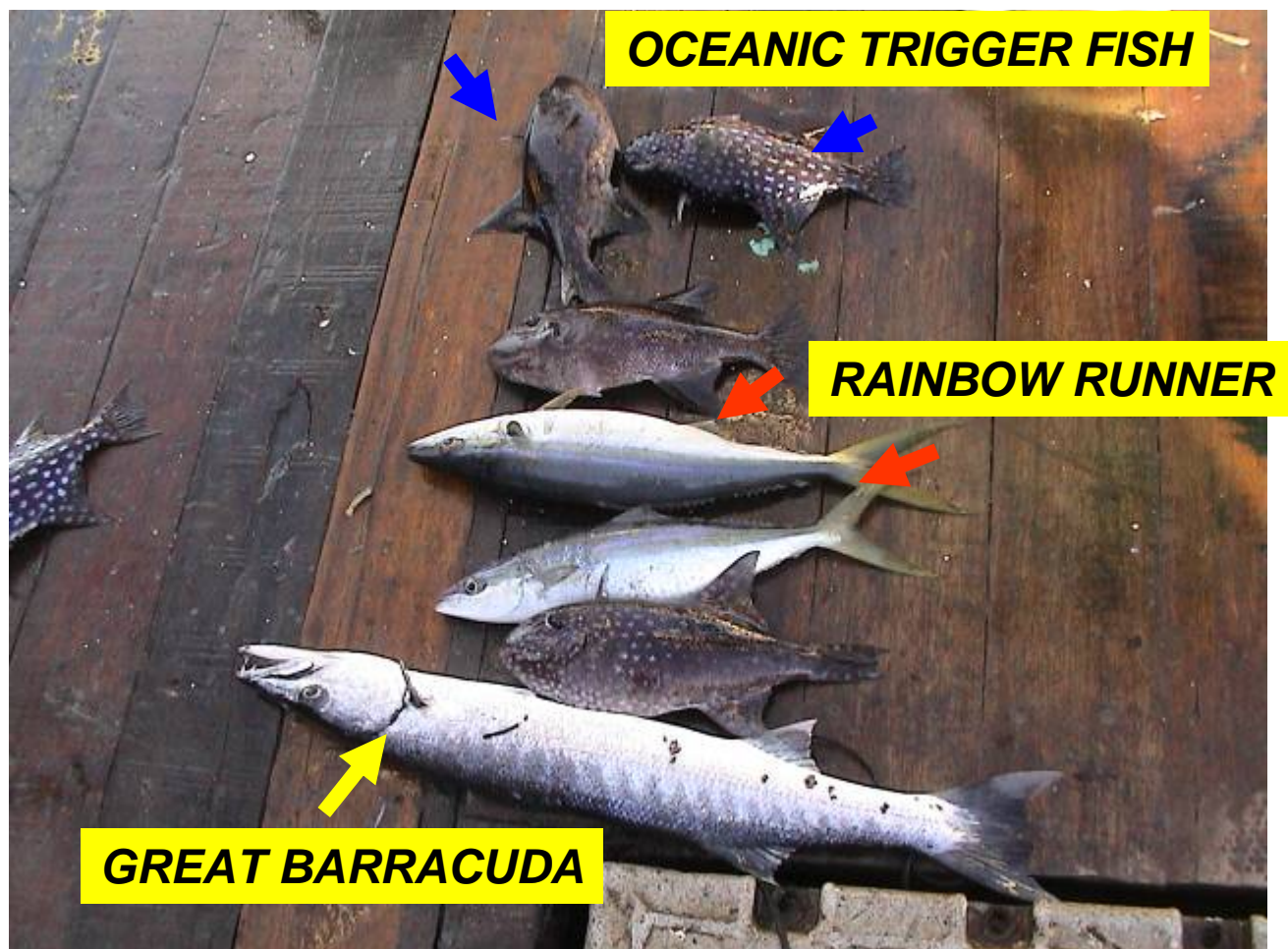
FAO CODE: BAO

- *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

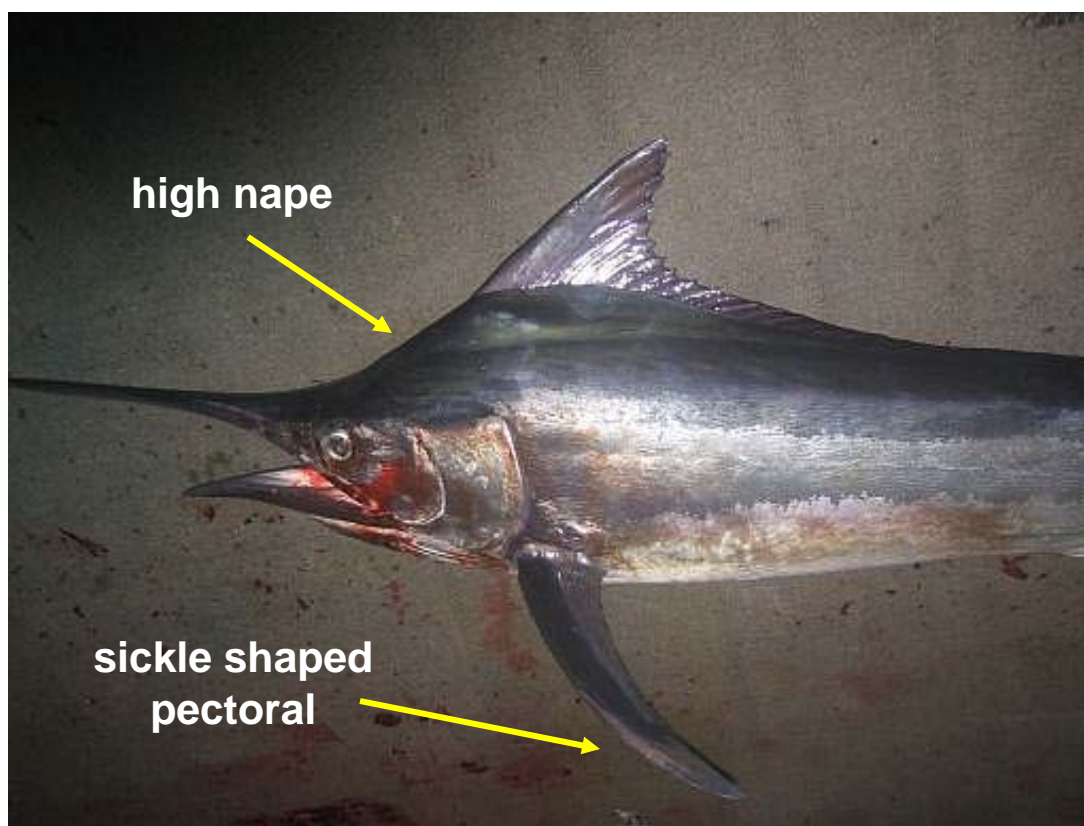


photo NOAA Fisheries

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

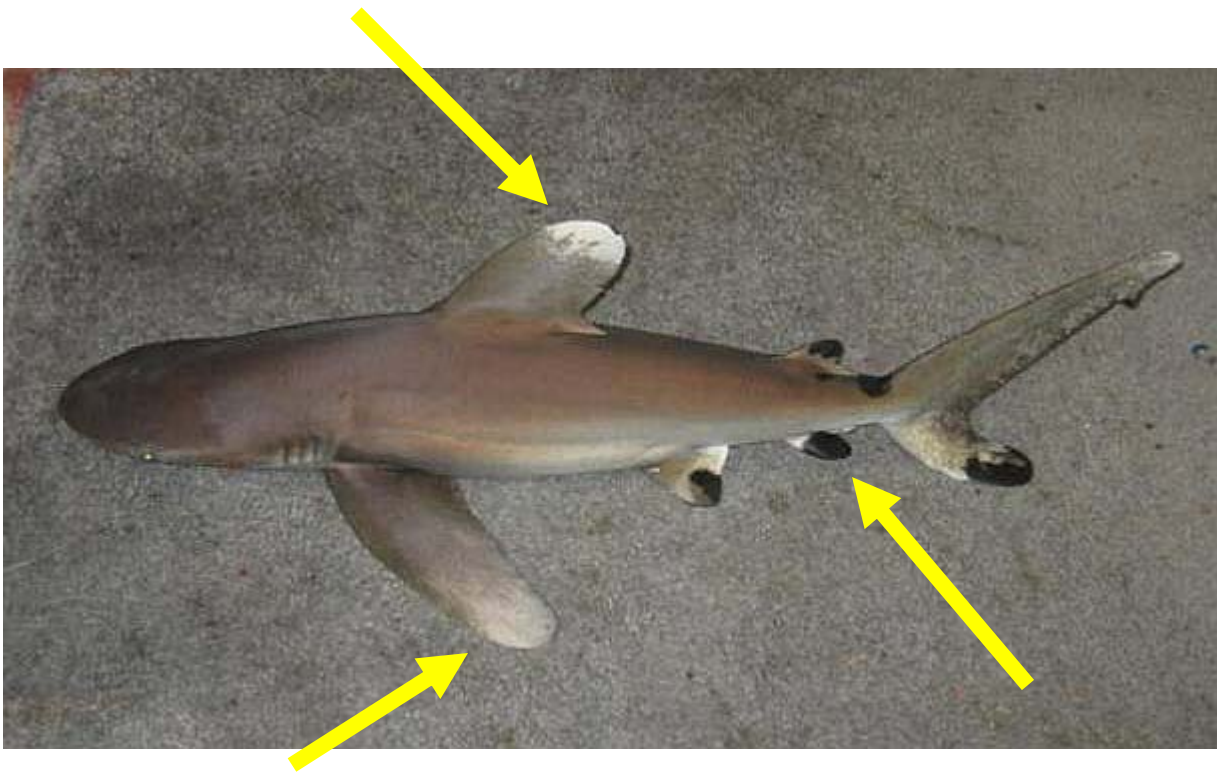


photo NOAA Fisheries

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*



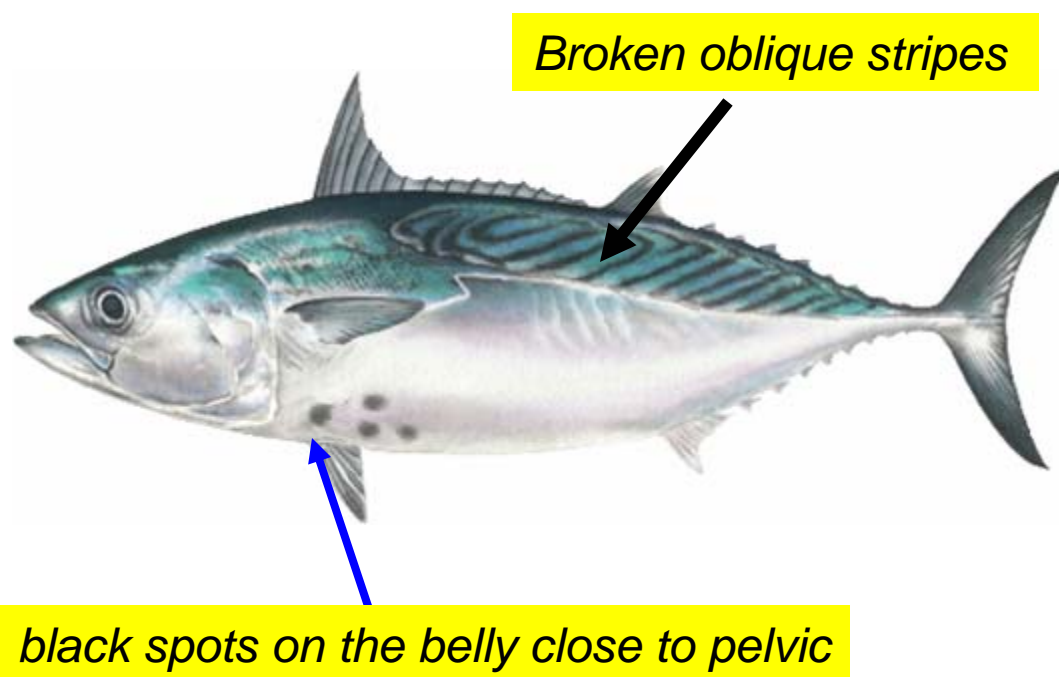
photo NOAA Fisheries



KAWAKAWA

Euthynnus affinis

FAO CODE: KAW

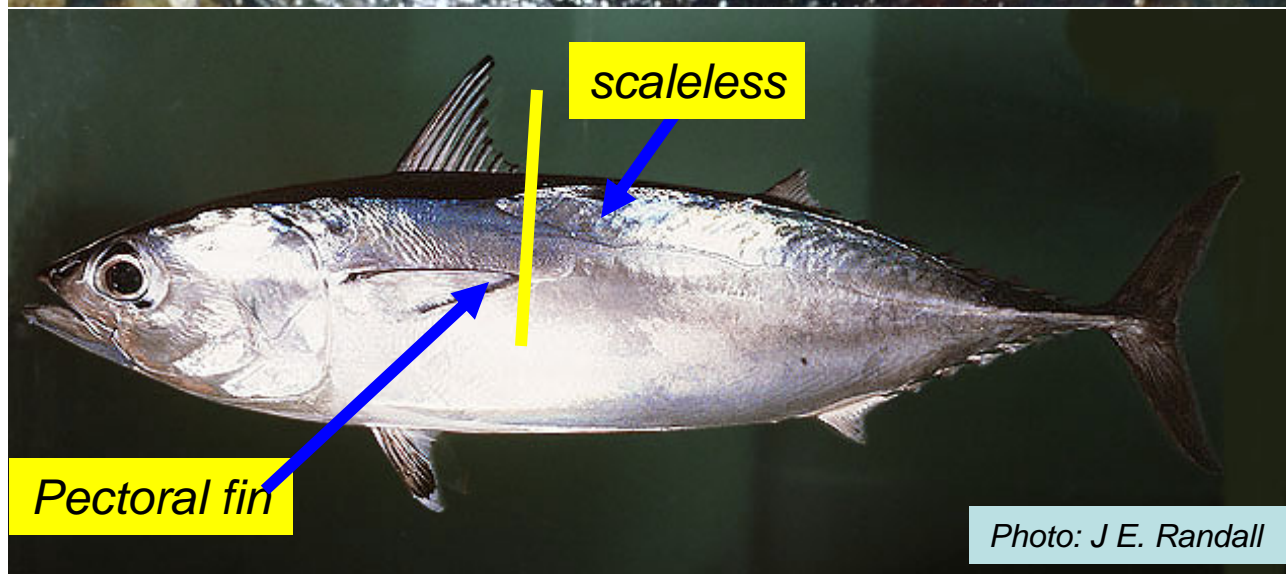
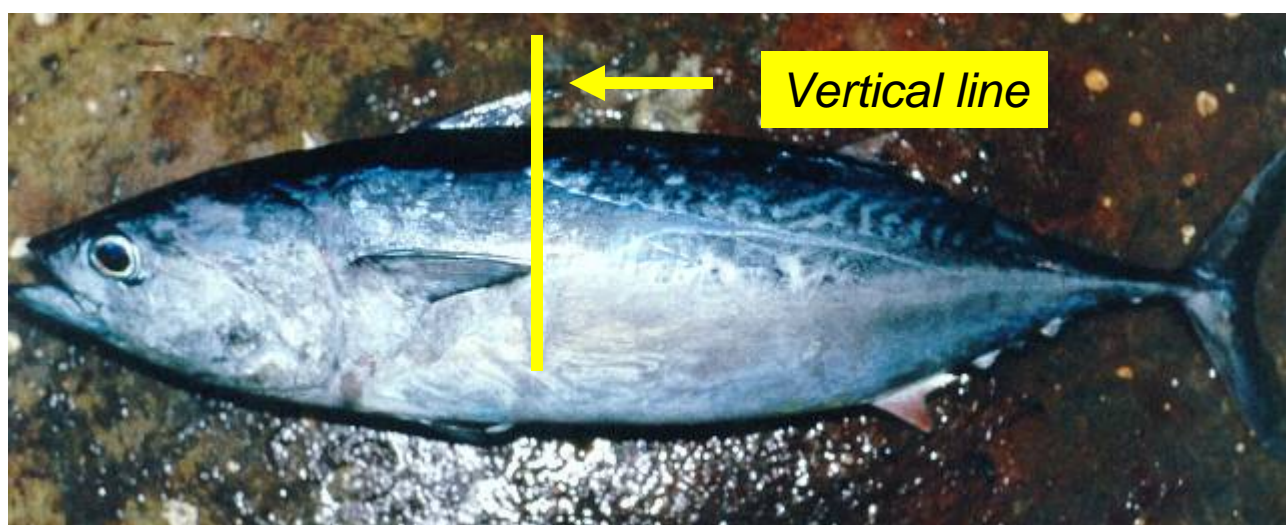


FRIGATE TUNA

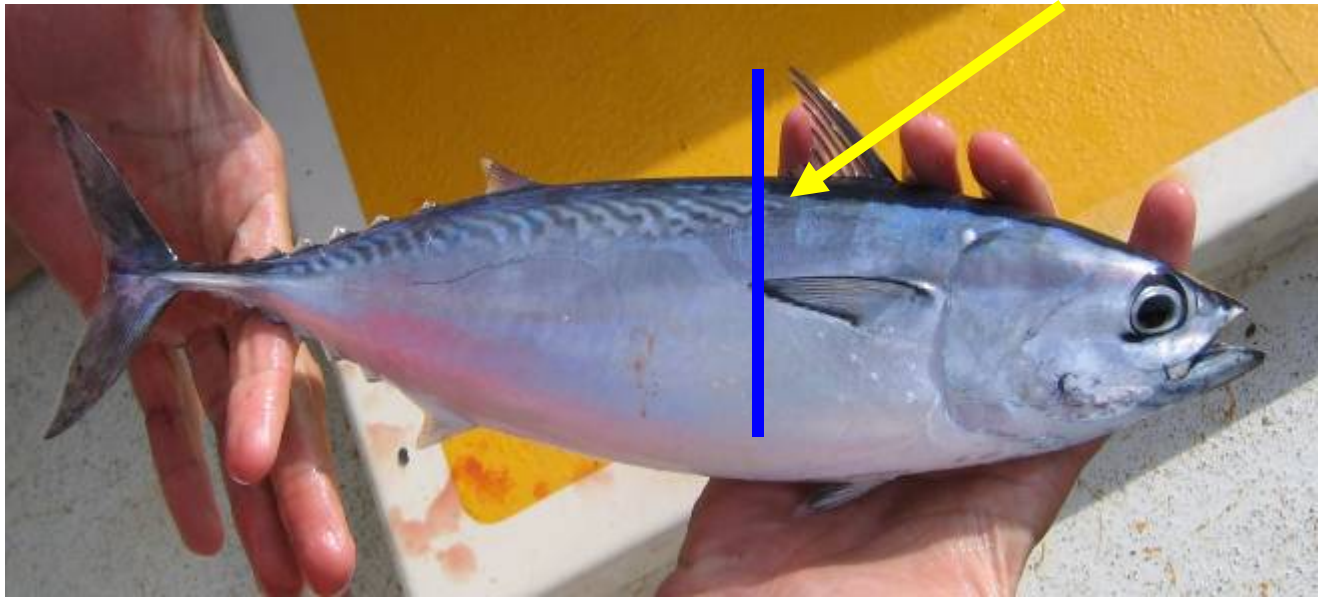
Auxis thazard

FAO CODE: FRI

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



FRIGATE TUNA



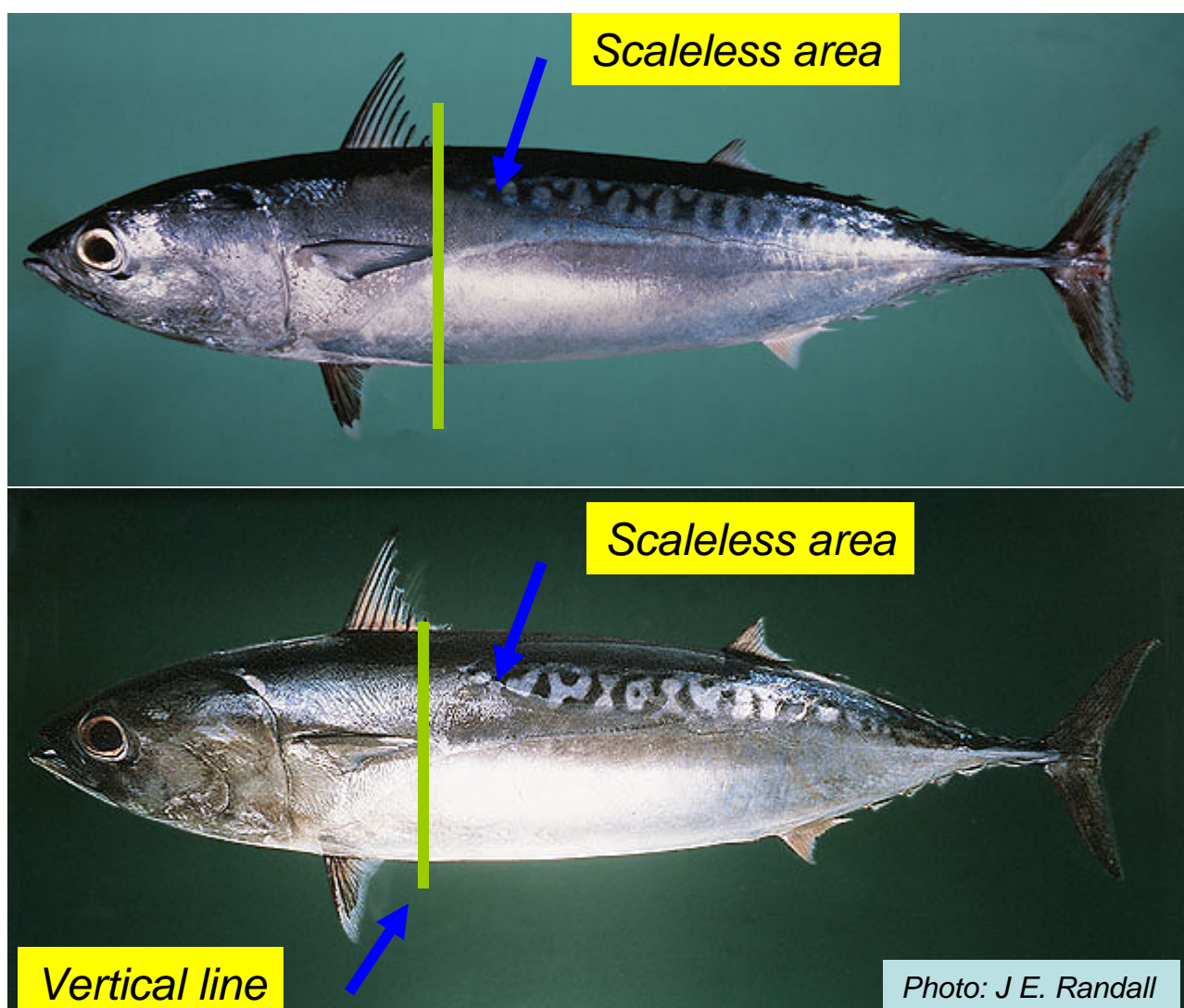
- *Short pectoral fins, but reaching past vertical line from anterior margin of scaleless area above corslet*

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

skipjack

OCEAN ANCHOVY
Stolephorus punctifer

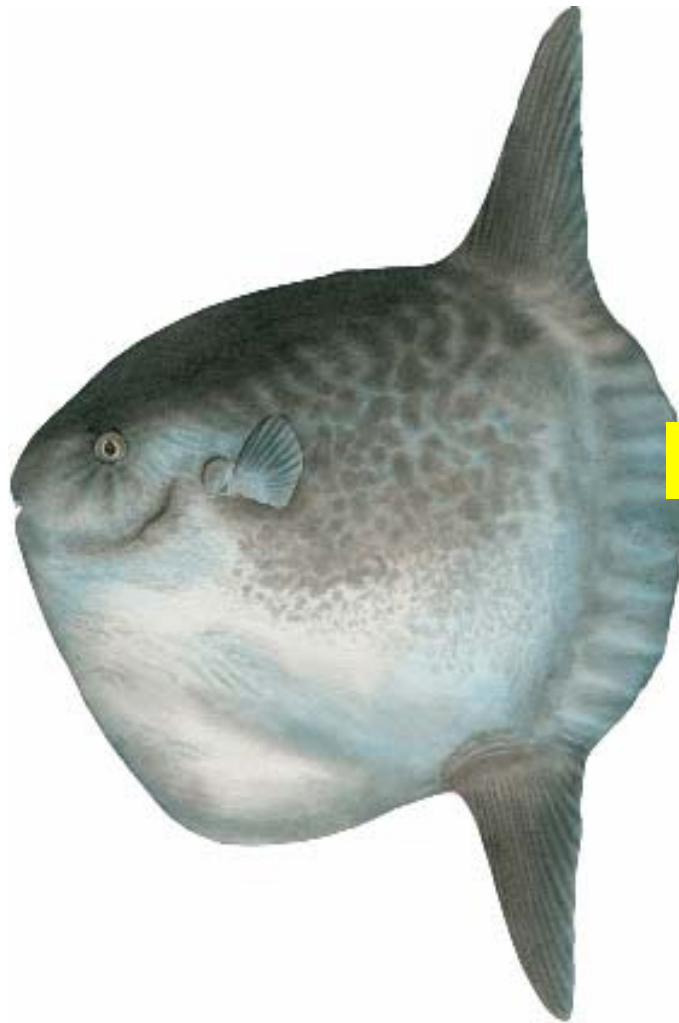


Rounded snout, A very broad silver mid-lateral band with darker margins

OCEAN SUNFISH

Mola mola

FAO CODE: MOX



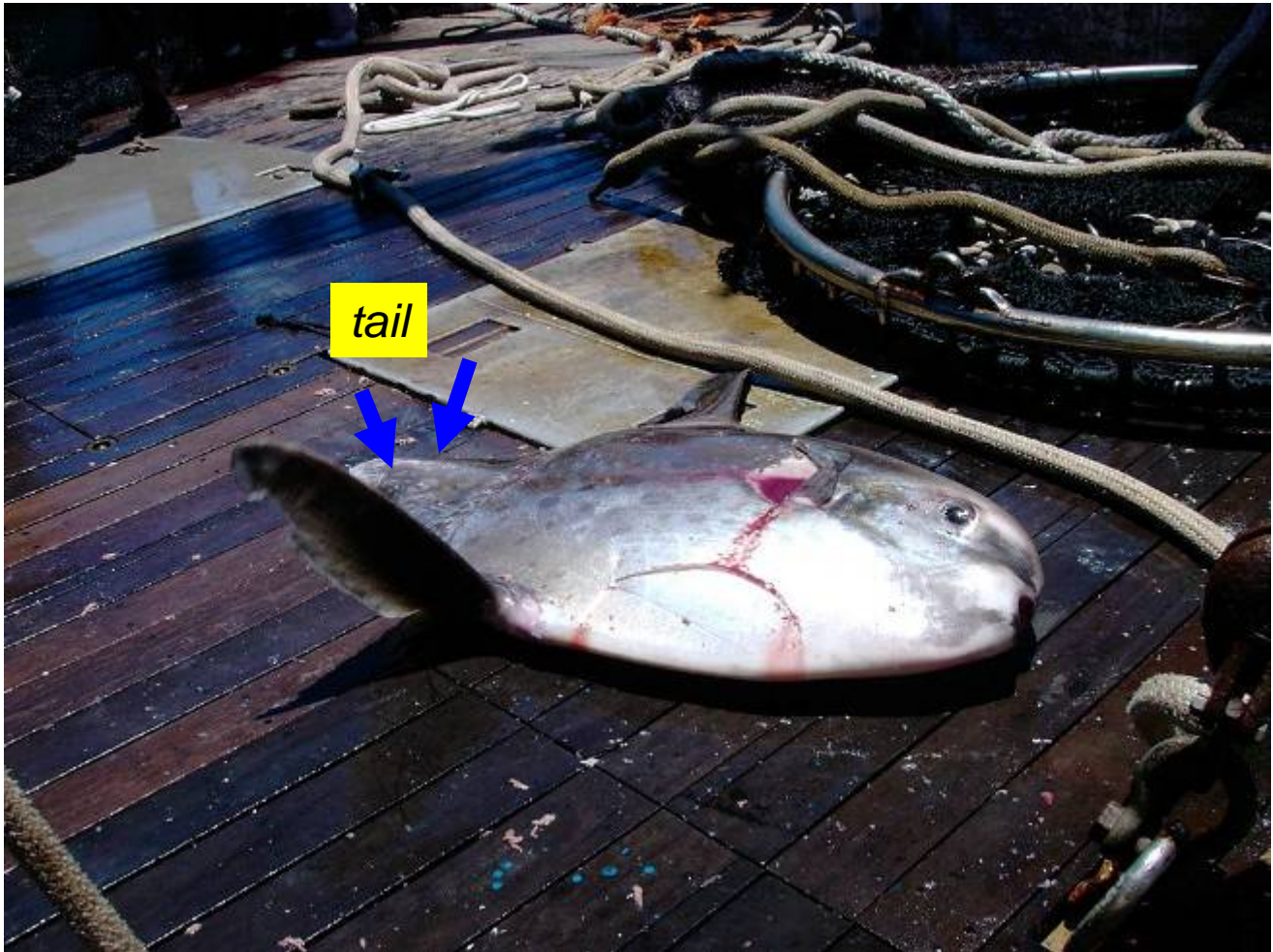
No tail

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

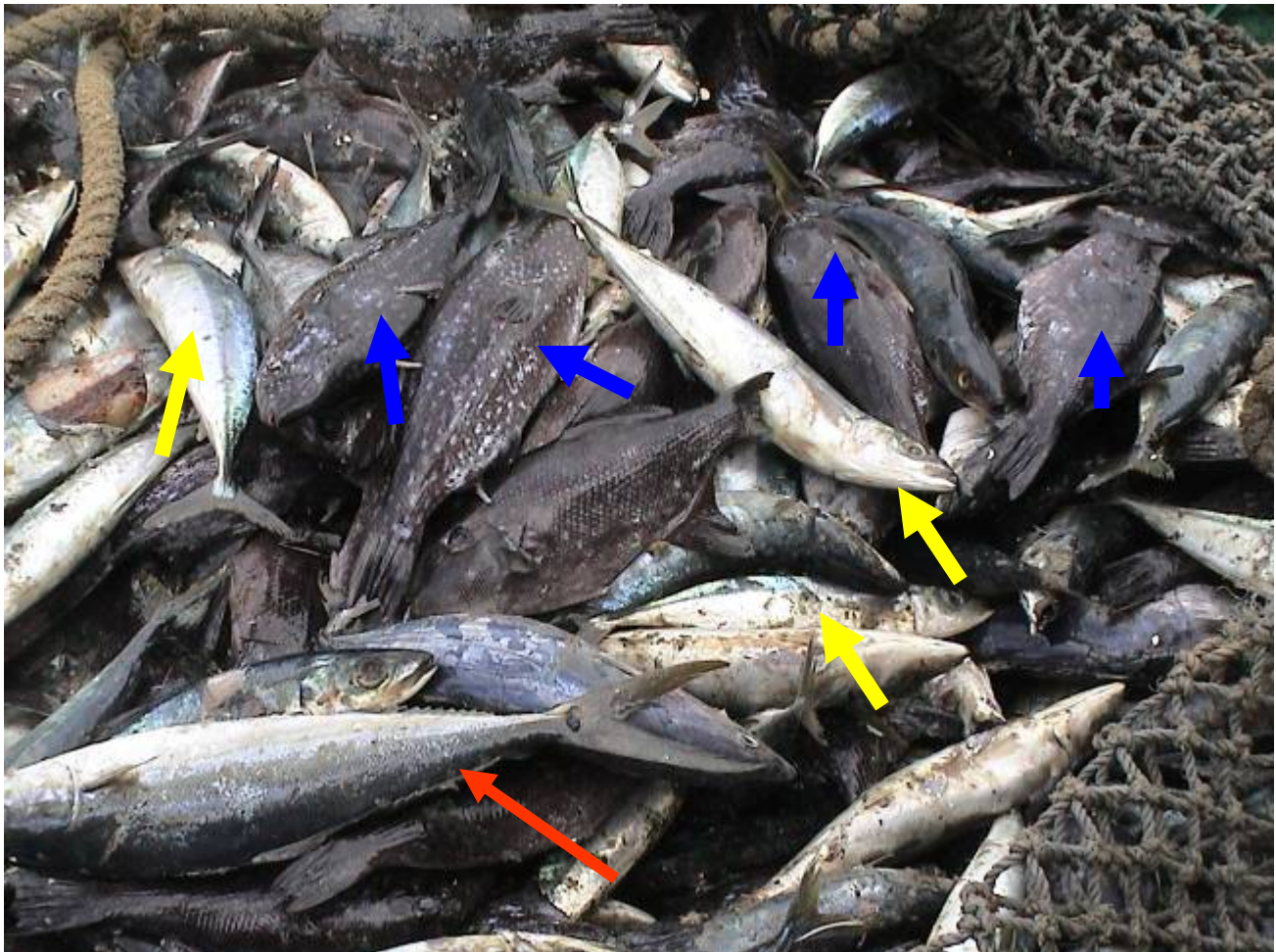
Dasyatis violacea

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

