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

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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.

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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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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

white spots
spine
Spine – may be more than 2
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

Two rayed finlet behind second dorsal and anal fins

Skipjack tuna
RAINBOW RUNNER
*Elagatis bipinnulata*
FAO CODE: RRU

Blue and yellow strips along the body
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

_Lateral line with 30 to 42 scutes_
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 ½ to ¾ 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 ½ 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*
**STRIPED MARLIN**
*Tetrapturus audax*
*FAO CODE: MLS*

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

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

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

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

black spots on the belly close to pelvic

Broken oblique stripes
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.

*Photo: J E. Randall*
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 puntifer

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
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
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