



Food and Agriculture
Organization of the
United Nations



Indian Ocean Tuna Commission
Commission des Thons de l'Océan Indien

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Identification: Target and Non-target Fish Species

IOTC ROS SFO TR9



CapMarine
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How to Use a Species Identification Guide

IOTC ROS SFO TR9.7

Category: Species identification

IOTC ROS SFO TR9



This course aims to familiarize Observers with the usage of species identification guides as these will be used daily in their routine work.

Trainee performance is evaluated against the following agreed IOTC ROS competency standards:

- Candidate ability to use standard identification guides to identify species of tuna, billfish, sharks and other bycatch.



Relevant Species Identification Guides

To download species identification guides relevant to this training follow this steps:

1. Login to Talents LMS
2. Go to TR09- ID- Fish-Species and click in TR09 Support Documents
3. Go to TR10- ID- PETS -Species and click in TR10 Support Documents
4. Download all ID guides listed
5. Organize ID guides into folders on your laptop, tablet or mobile phone for easy access at sea



Home / TR09 Support Documents



TR09 Support Documents

ID guides that observers can download and use

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- 📄 FAO Onboard Identification Pelagic Sharks Guide Part-1
- 📄 FAO Onboard Identification Pelagic Sharks Guide Part-2
- 📄 FAO Onboard Identification Pelagic Sharks Guide Part-3
- 📄 IOTC Identification Cards Billfish
- 📄 IOTC Identification Cards Sharks
- 📄 IOTC Identification Cards Tuna
- 📄 Non Target Species Identification Guide for Longliner and Gillnet
- 📄 Yellowfin versus Bigeye Tuna Identification Guide in Fresh Conditions

There are different types of species identification guides, guides that are developed to be used by researchers (found in specialist shops, very expensive), commercially published field guides (found in bookshops, relatively expensive) and field guides that are made available gratuity in the internet by different organizations.



During this training we shall learn how to use FIELD GUIDES developed by the IOTC, other RFMOs and the FAO to help at-sea Observers with the identification of fish, shark, ray, turtle, bird and cetaceans species that are caught, encountered or interact with the tuna pelagic fisheries in the Indian Ocean.

- FAO Onboard Identification Pelagic Sharks Guide Part-1, Part-2, and Part-3
- IOTC Identification Cards: Billfish, Sharks, Tuna, Turtles, Seabirds, and Cetaceans
- Photographic identification guide for non-target species taken in WCPO pelagic longline fisheries
- Photographic identification guide for non-target species taken in WCPO pelagic purse-seine fisheries
- Handbook for the ID of YFT and BET in Fresh Condition

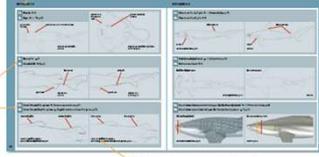


How to Use ID Guides

HOW TO USE THIS GUIDE

The format adopted here is designed to streamline the process of identifying the most common, and some of the less common, pelagic shark and ray species occurring in the Western Indian Ocean. The first thing the user should do when a specimen is caught is go to the Key Guide to determine which key characters the specimen has and follow the key to the families, Sharks pages 10 to 13 and Rays pages 93 to 94.

Key guide



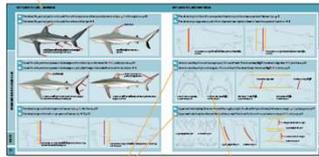
numbered key steps

directions to next step or family guide

Once the family of the specimen has been determined, you should then go to the appropriate page for that family. The species can then be determined by going through the family key on that page, and then going to the individual species page with its accompanying page of similar species on the reverse side.

- SPHYRINIDAE page 14
- CARCHARHINIDAE pages 21-23
- LAMNIDAE page 45
- ALIPIIDAE page 55
- ODONTASPIDIDAE page 56
- PSEUDOCARCHARIIDAE page 56
- HEXANCHIDAE page 75
- Dogfish sharks without spines page 76

Family key guide



numbered key steps

directions to next step or species page

Check each guide's introduction or "How to use" section to see which diagrams and types of records are available to assist you.



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How To Use This Guide

Species Accounts

FAO code: presented in the top right corner of each species page as: **12545**

WoRMS Life Science Identifier ID: **12545**

Distribution maps: the known, suspected or inferred distribution of each species in the IOTC area is presented in blue on the maps.

Length: all species length measurements refer to the straight-line distance from snout to the notch in the tail flukes and are the maximum size recorded for the species.

Tips to help with identification

Guide organisation: species have been organized into groups according to morphology and/or taxonomy (e.g. beaked whales, dolphins, porpoises, baleen whales, blackfish etc.). These groups are denoted by colour on the

edge of the page to aid quick navigation.

Colour: Colour can be very useful to identify cetaceans in the field, however, many colours fade quickly after death and can be obscured in the field at distance or if the animals are poorly lit. Therefore, colour should be used with caution when identifying cetaceans.

Dead animals: To identify dead animals that can be directly examined, tooth counts, the number of throat pleats and the characteristics of baleen can be very useful for narrowing down and helping to identify species.

Photographs: as a priority take photographs of dead animals. Photograph the head, any diagnostic features, injuries and the entire body from different angles.

Common English name



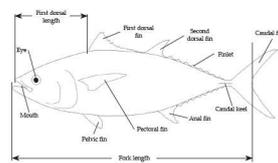
How to use these cards?

- J - Japanese name
- C - Simplified Chinese / traditional Chinese names
- F - French name
- S - Spanish name

Scientific name

Each card contains

- the scientific name of the species as well as its common names in English, French, Spanish, Japanese, traditional and simplified Chinese,
- its FAO code
- an illustration of the species with some distinctive features
- its maximum fork length (Max FL)
- its common fork length in the Indian Ocean (Com. FL)



Measurements used for tuna:

- Fork length (FL)
- First dorsal length or predorsal length (FD1)

Terminology

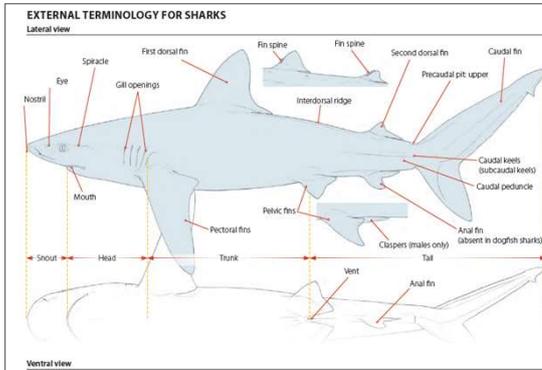
- Caudal keel: fleshy ridge; usually relates to a skin fold on the pre-caudal peduncle.

Check each guide's introduction (if any) or "How to use this guide" section to see which diagrams and types of records are available to assist you with the species identification.

The usage of certain guides will be almost intuitive while others will require you to study usage instructions in close detail.



Guide Terminology



Find and utilise the correct terminology in your identification process and reporting based on glossaries of terms, diagrams and instructions provided in the guides.

Glossary of Terms

Term	Meaning	Term	Meaning
Baleen	Plates of dense, hair-like material (keratin) that hang side by side in rows from the roof of the mouth of baleen whales allowing them to filter feed	Jaw	The upper and lower components of the mouth where the teeth are located. In toothed whales the upper and lower jaws usually each have two tooth rows (left and right)
Beak	Rostrum	Melon	A lump of fatty tissue that forms the forehead of toothed whales and that is thought to function as a means of focusing sound for echolocation
Callosities	A patch of thickened, keratinized tissue on the head of a right whale, inhabited by large numbers of whale lice	Rostrum	The beak-like projection found at the front of the skull or head of a cetacean
Cape	Dark back differentiated by a clear line from the lighter sides of an animal	Tail stock	The part of the body between the dorsal fin and the tail flukes
Dorsal fin	The fin on the top of the back of the body	Throat groove/pleats	The longitudinal folds that line a baleen or beaked whale's throat from under its mouth to its stomach
Falcate	Sickle shaped, curved, and usually pointed at the tip	Tooth row	Teeth in lower left, lower right, upper left or upper right jaw of a toothed whale
Flippers	The flattened forelimb of a marine mammal	Tripartite	Clearly differentiated three part colour pattern, normally dark above, light below and intermediate on the sides
Flukes	The horizontal tail of a whale or dolphin	Turbercles	A small rounded projection or protuberance

Common English name **How to use this card?**

Scientific name

Each card contains

- the scientific name of the species as well as its common names in English, French, Spanish, Japanese, traditional and simplified Chinese,
- its FAO code
- an illustration of the species with some distinctive features
- its maximum total length (Max. TL)

Terminology

- Caudal keel: fleshy ridge, usually relates to a skin fold on the pre-caudal peduncle. Xiphiidae have a large median caudal keel and Istiophoridae have a pair of caudal keels on the middle of the caudal peduncle.

Measurements used for billfish:

- lower jaw to fork length (LJFL)
- eye to fork length (EFL)

Notes: total length is never used to sample billfish and is given here only for illustrative purpose.



Find and utilise the correct terminology in your identification process and reporting based on glossaries of terms, diagrams and instructions provided in the guides. The usage of some guides will only require you to understand the terminology used to externally describe different organisms while other will require you to identify key characters of the specimen and to use identification keys to progressively ascertain specimen family, genus and species.



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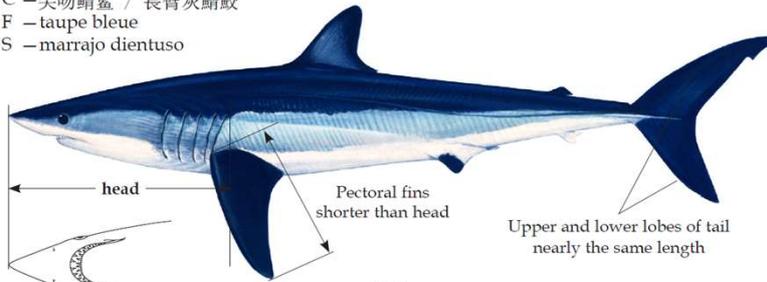
Identification Cards

Shortfin mako

SMA

Isurus oxyrinchus

- J - バケアオザメ
- C - 尖吻鯖鲨 / 長臂灰鯖鯨
- F - taupe bleue
- S - marrajo dientuso



Head conical and
snout pointed

Max. length: 395cm

Sharks — with bluish colouring



Have a look at your IOTC identification cards – notice the various common names in different languages, the scientific name, FAO species code (here, SMA), descriptions, measurements and details on the colour drawing. This information will help you to correctly identify the different specimens caught at-sea.

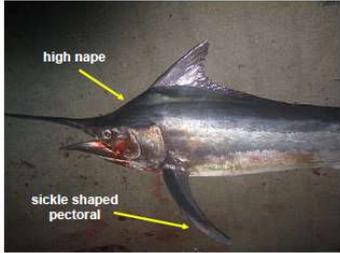


Photographic Identification Guides

v1: July 2007
22

Billfish

Black Marlin – *Makaira indica*



Identifying characters

- First dorsal fin height is $\frac{1}{2}$ or less of the greatest body depth
- Pectoral fins sickle shaped and rigid; can not be folded flat to body
- Second dorsal fin slightly anterior to the second anal fin
- Highly angled nape (area between bill and first dorsal fin)
- Short, stout bill, round in cross section
- Body coloration is black to dark blue on dorsal surface, silvery-white to white below
- Vertical stripes not distinct in life and fade after death
- Short pelvic fins; shortest of all the marlins

Familiarize yourself with WCPC photographic identification guides. Mark the different sections so you can find them easily. Notice the common and scientific name, and identifying characters listed and highlighted in the photos provided.

Photographic guides use photos taken in real life conditions, on-board the vessels, many taken by observers and allow you to have an idea of how the specimen will look when fresh, processed and frozen. They also provide a zoom on particular characteristics that are considered by your pairs to be the ones that will allow fellow observers to identify a specific species in the fastest and most precise way. Such photographic manuals allow us to have access to decades of cumulated observer knowledge and thousand of photos taken at sea by Observers.



Identification Manuals

KEY GUIDE 1-3

- Go to the Key Guide**
- Determine which key characters the specimen has**
- Follow the key to the families**
- Ascertain the shark specimen family**
- Go to the appropriate page for that family**
- Go through the family key, on that page, and determine the species**
- Go to the individual species page and check if correct.**

1b Rays → 13, p.93

2a No anal fin → 3

no anal fin

anal fin

pectoral fins

pectoral fins

No anal fin- Go to 3

Has anal fin- Go to 4, p.11



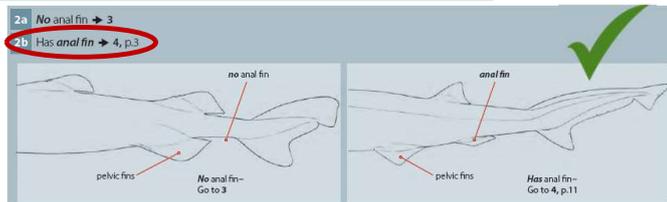
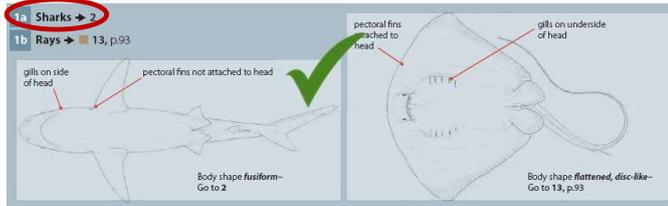
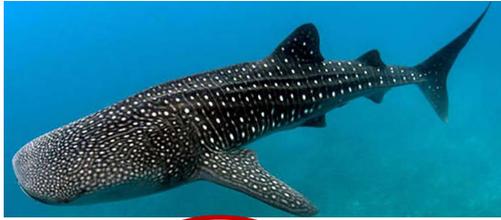
Use identification manuals to identify organisms that are complex or difficult to identify due to the high number of specimens and the high number of characteristics that they might share.

Sharks are a good example, these group of elasmobranch fish diversified into over 500 species, organized under 30 different families and 8 different orders.

To identify a shark specimen, first go to the Shark Species Identification Key Guide to determine which key characters the specimen has and follow the key to the families. Once the family of the specimen has been determined, you should then go to the appropriate page for that family. The species can then be determined by going through the family key, on that page, and then going to the individual species page. When you are uncertain of the species, register the genus, if also uncertain of the genus than only record to what family the specimen belongs to.



Example Shark Species Identification

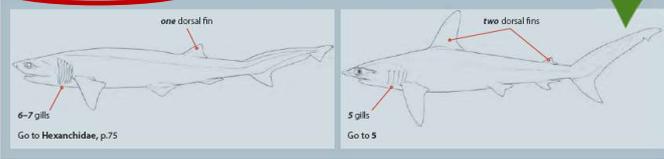


- Go to the Key Guide
- Determine which key characters the specimen has
- Follow the key to the families
- Ascertain the shark specimen family



4a One dorsal fin, 6-7 gills → Hexanchidae, p.75

4b Two dorsal fins, 5 gills → 5



5a Hammer-shaped head → Sphyrnidae, p.14

5b No hammer-head → 6



6a Mouth *does not* extend behind eyes. Checkerboard pattern → Rhincodontidae, p.69

6b Mouth *does* extend behind eyes. No checkerboard pattern → 7, p.12



- Go to the appropriate page for that family
- Go through the family key, on that page, and determine the species



ORECTOLOBIFORMES		Rhincodontidae: Whale shark		RHN	
Rhincodon typus Smith, 1828		Whale Shark Requin Baleine	VU	LL	
<p>Dentition</p> <p>Teeth similar in upper and lower jaws, minute, hook-shaped. Tooth counts: 300 or more rows on upper and lower jaws.</p>					
<p>Description</p> <p>An unmistakable shark with its unique checkerboard colour pattern of horizontal and vertical stripes with white or yellow spots, offset by a bluish to grey background colour, a broad flattened head, wide terminal mouth, long vertical gill slits, prominent longitudinal ridges on its back and large semi-crescent caudal fin.</p>					
<p>Colour</p> <p>Unique checkerboard pattern consisting of prominent white or yellow spots between vertical and horizontal stripes offset by a background colour that ranges from dark grey to bluish or brown above, becoming white below.</p>					
<p>Size</p> <p>Males mature: 800-900cm. Females mature: about 1000cm. Maximum size: 1800cm. Birth size: 55-65cm.</p>					
<p>© British Marine Yacht & Boat Developments Centre, Taiwan</p>					
<p>CapMarine Capricorn Marine Environmental</p>					
<p>SHARK</p>					

- Go to the individual species page and check if correct.



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ANY QUESTIONS?



send us a message via Talents LMS



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