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



# STATUS OF THE DEVELOPMENT OF IDENTIFICATION CARDS FOR SHARKS, SEABIRDS AND MARINE TURTLES

**PREPARED BY: IOTC SECRETARIAT, 7 OCTOBER, 2011**

## PURPOSE

To update the Working Party on Ecosystems and Bycatch (WPEB) on the development and production of identification (ID) cards for sharks, seabirds and marine turtles by the Secretariat.

## BACKGROUND

Following recommendations from the Working Party on Ecosystems and Bycatch, the Scientific Committee made the following recommendations at its 13th Session in 2010 on the development of identification cards for sharks, seabirds and marine turtles.

> *"The SC noted requests made by several coastal states for technical support in obtaining training materials to improve shark identification, and recommended that the identification cards under current development by the Secretariat are finalized and circulated in 2011."* (para.67)
>
> *"The SC urged the Secretariat to complete the seabird identification card project for the consideration of the WPEB in 2011."* (para.95)
>
> *"The SC recommended that the marine turtle identification sheets be finalized by the Secretariat before the next Session of the WPEB, in cooperation with other relevant organizations."* (para.105)

The intention for the identification cards is for them to be used primarily by scientific observers under the framework of the IOTC Regional Observer Scheme, however they could also be distributed and used by fishers in order to record and report interactions with sharks, seabirds and marine turtles.

## UPDATE

**Marine turtles.** The Secretariat has developed and finalized the identifications cards for marine turtles thanks to the help of experts from the IOASEA MoU – Mr. Douglas Hyke and his team, from IFREMER La Réunion – Mr. Jérôme Bourjea, and from KELONIA – Mr. Stephane Ciccione. The marine turtle ID cards were based on those produced by the Secretariat of the Pacific Community (SPC), who shared their copyrights on the identification cards with the IOTC.

**Seabirds.** The Secretariat has developed and finalized the identifications cards for seabirds thanks to the help of experts from Birdlife International – Dr. Ross Wanless, from the Secretariat of the Agreement on the Conservation of Albatrosses and Petrels – Mr. Barry Baker and Mr. Warren Papworth, and from the Royal Society for the Protection of Birds – Ms. Cleo Small. These ID cards were developed with seabird drawings provided by Random House Struik which owns the copyright on illustrations.

**Sharks.** The Secretariat is finalizing the identifications cards for sharks with the help of the Chairman of the WPEB, Dr. Charles Anderson and Dr. Evgeny Romanov (Invited Expert for WPEB07). These ID cards were developed with illustrations of sharks and rays by Roger Swainston and in collaboration with the Institut de Recherche pour le Développement (IRD) and the French National Natural History Museum (MNHN).

All of the ID cards were produced in English and French and modification will not be allowed without prior written consent from the IOTC Secretariat. All images, drawings and illustrations contained in the ID cards remain under copyright and use by third parties cannot be permitted.

The Secretariat is currently working with a printing company in Mauritius is order to print a first batch of the ID cards using the remaining funds available in the IOTC budget for this purpose (around USD$25,000), however, the IOTC does not have the financial means to print cards for all the CPCs. As such, pdf files of the ID cards in both English and French will be made available on the IOTC website for CPCs to download, print and disseminate them to their observers.

## RECOMMENDATIONS

That the Working Party on Ecosystems and Bycatch:

1) **NOTE** that the IOTC Secretariat has finalised the IOTC identification cards for marine turtles and seabirds.

2) **NOTE** the progress made by the IOTC Secretariat on completing the identifications cards for sharks and **RECOMMEND** that these are finalized as quickly as possible, and for an update to be provided at the 14th Session of the Scientific Committee.

3) **RECOMMEND** that IOTC Secretariat print and disseminate the IOTC identifications cards for marine turtles, seabirds and sharks using the remaining funds allocated to the task and to distribute these to developing coastal states as a priority, for use by observers accredited for the Regional Observer Scheme and field samplers (Resolution 11/04), and to a larger extent to their fishing fleets targeting tuna, tuna-like and shark species. This would allow accurate observer, sampling and logbook data on marine turtles, seabirds and sharks to be recorded and reported as per IOTC requirements.

4) **RECOMMEND** that IOTC CPCs print, eventually translate, and disseminate the IOTC identifications cards for marine turtles, seabirds and sharks in priority to their observers accredited for the Regional Observer Scheme and field samplers (Resolution 11/04), and to a larger extent to their fishing fleets targeting tuna, tuna-like and shark species. This would allow accurate observer, sampling and logbook data on marine turtles, seabirds and sharks to be recorded and reported as per IOTC requirements.

5) **RECOMMEND** that the additional funds from the IOTC accumulated funds or other sources be allocated to print and distribute the identification cards to developing coastal states.

## ATTACHMENTS

**Attachment A:** IOTC MARINE TURTLE ID CARDS 2011

**Attachment B:** IOTC SEABIRD ID CARDS 2011

**Attachment C:** draft IOTC SHARK ID CARDS 2011

# MARINE TURTLE IDENTIFICATION CARDS

These turtle identification cards are produced as part of a series of awareness materials developed by the Indian Ocean Tuna Commission and the Coastal Fisheries Programme of the Secretariat of the Pacific Community in order to improve the reporting of interactions between vessels targeting species under the management mandate of IOTC and marine turtles.

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This publication was made possible through financial assistance provided by the ‹Partner›

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Acknowledgements: wWe gratefully acknowledge contributions from the Secretariat of the IOSEA MoU, IFREMER and KELONIA for the development of these marine turtle identification cards.

# Flatback turtle

*(Natator depressus)*

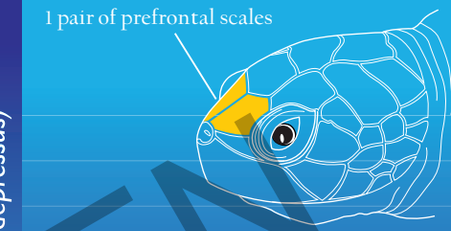
Mean length: 90 cm
Mean weight: 70 kg
Colour: grey to olive-green carapace; underside of flippers and tail yellow or cream colour.
Diet: sea cucumbers, crustaceans and other invertebrates.
Status: IUCN: Data Deficient , CITES: Appendix I (international trade and transport prohibited)

FR: tortue à dos plat
ESP: tortuga plana de Australia

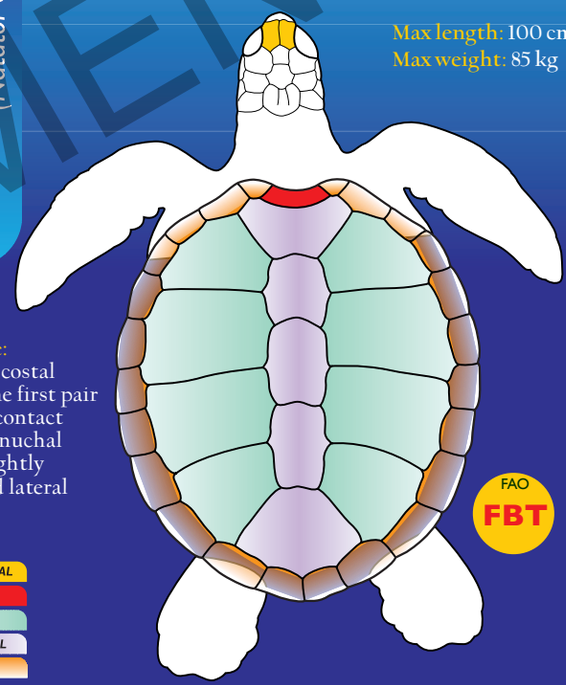
Photo: Dr Colin Limpus

# Flatback turtle

*(Natator depressus)*




Max length: 100 cm
Max weight: 85 kg



Carapace:
4 pairs of costal scutes, the first pair is not in contact with the nuchal scute; slightly upturned lateral margins.

PREFRONTAL
NUCHAL
COSTAL
VERTEBRAL
LATERAL

FAO
FBT

# Loggerhead turtle

*(Caretta caretta)*

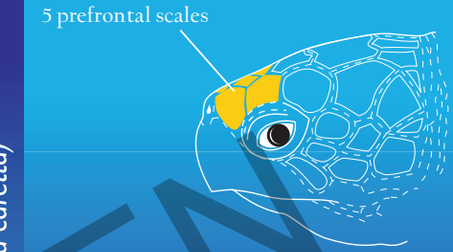
**Mean length:** 100 cm
**Mean weight:** 110 kg
**Colour:** reddish-brown to orange-brown carapace.
**Diet:** crustaceans, molluscs, fish and echinoderms.
**Status:** IUCN: Endangered, CITES: Appendix I (international trade and transport prohibited).

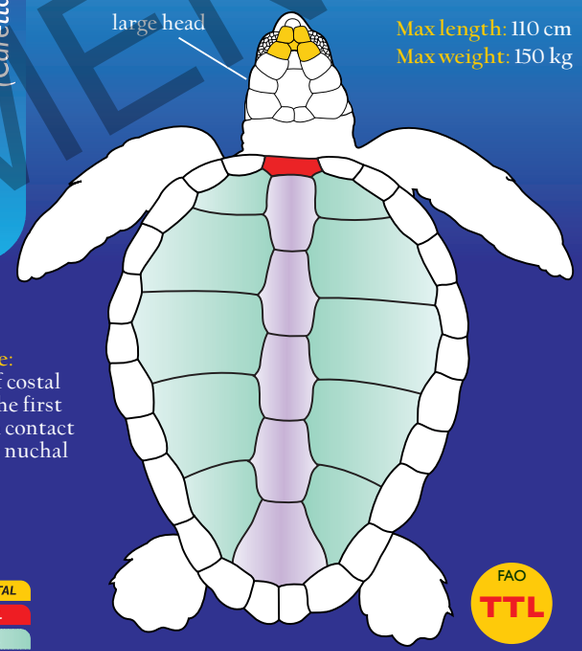
FR: tortue caouanne
ESP: caguama

Photo: World Wildlife Fund

# Loggerhead turtle

*(Caretta caretta)*




**Max length:** 110 cm
**Max weight:** 150 kg

**Carapace:**
5 pairs of costal scutes, the first pair is in contact with the nuchal scute.

PREFRONTAL
NUCHAL
COSTAL
VERTEBRAL

FAO
TTL

# Hawksbill turtle

*(Eretmochelys imbricata)*

**Mean length:** 90 cm
**Mean weight:** 60 kg
**Colour:** reddish-brown to orange carapace with dark brown to black markings; darkish head scales and flippers, separated by light-colour bands; undersides of flippers and tail very pale yellow.
**Diet:** soft coral, sponges, crustaceans and cephalopods.
**Status:** IUCN: Critically Endangered ; CITES: Appendix I (international trade and transport prohibited).

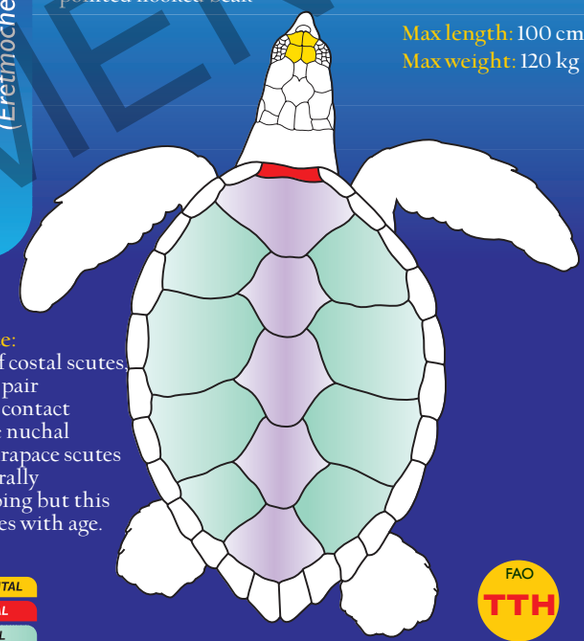
FR: tortue imbriquée
ESP: tortuga de Carey

Photo: Dr Colin Limpus

# Hawksbill turtle

*(Eretmochelys imbricata)*


**Max length:** 100 cm
**Max weight:** 120 kg



**Carapace:**
4 pairs of costal scutes, the first pair is not in contact with the nuchal scute; carapace scutes are generally overlapping but this trait fades with age.

PREFRONTAL
NUCHAL
COSTAL
VERTEBRAL

FAO
TTH

# Leatherback turtle

*(Dermochelys coriacea)*

**Mean length:** 170 cm
**Mean weight:** 450 kg (record at 918 kg)
**Colour:** back (pseudocarapace) and entire body: deep bluish-black with white spots. This animal does not have any scales.
**Diet:** mainly jellyfish but also molluscs, seaweed or plants.
**Status:** IUCN: Critically Endangered ; CITES: Appendix I (international trade and transport prohibited)

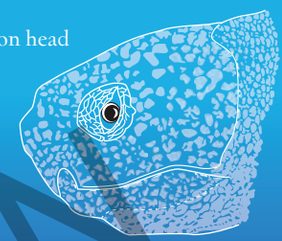
FR: tortue luth
ESP: tortuga laud

Photo: Vincent Liardet

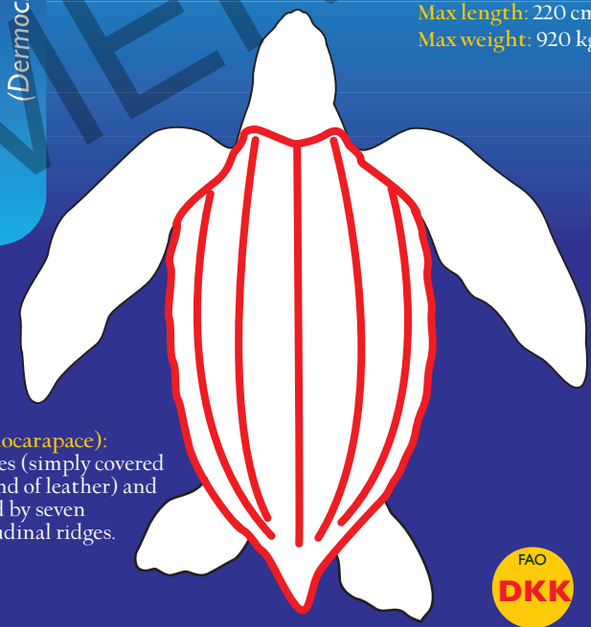
Leatherback turtle

*(Dermochelys coriacea)*

no scales on head



**Max length:** 220 cm
**Max weight:** 920 kg



**Back (pseudocarapace):** no scales (simply covered by a kind of leather) and divided by seven longitudinal ridges.

FAO
DKK

# Olive ridley turtle

*(Lepidochelys olivacea)*

**Mean length:** 70 cm
**Mean weight:** 45 kg
**Colour:** carapace and underside of flippers green to dark brownish-green; top of flippers and neck greyish-green. Carapace almost as large as long.
**Diet:** crustaceans, molluscs, jellyfish, less frequently seaweed and plants.
**Status:** IUCN: Vulnerable ; CITES: Appendix I (international trade and transport prohibited)

FR: tortue olivâtre
ESP: tortuga golfina

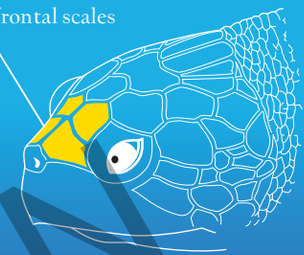
Photo: Dr Colin Limpus



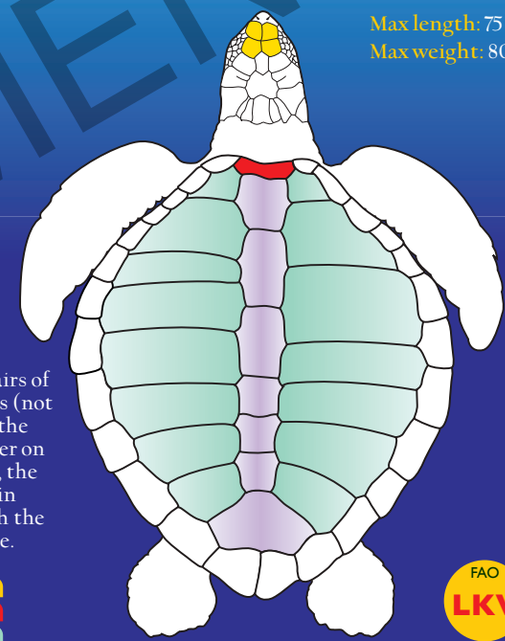
# Olive ridley turtle

*(Lepidochelys olivacea)*

2 pairs of prefrontal scales



**Max length:** 75 cm
**Max weight:** 80 kg



**Carapace:**
5 or more pairs of costal scutes (not necessarily the same number on either side), the first pair is in contact with the nuchal scute.

PREFRONTAL
NUCHAL
COSTAL
VERTEBRAL

FAO
LKV

# Green turtle

*(Chelonia mydas)*

**Mean length:** 110 cm
**Mean weight:** 145 kg
**Colour:** olive-green carapace with black spots in adults (› 90 cm); brick red with a few streaks in sub-adults (15–90 cm); bluish-black with a white edge bordering the carapace and flippers at birth.
**Diet:** adults: herbivores; juveniles: mainly carnivores (small crustaceans, molluscs and other invertebrates).
**Status:** IUCN: Endangered ; CITES: Appendix I (international trade and transport prohibited)

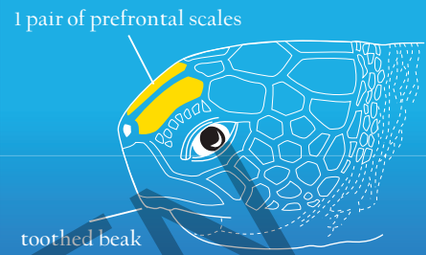
FR: tortue verte

ESP: tortuga verde

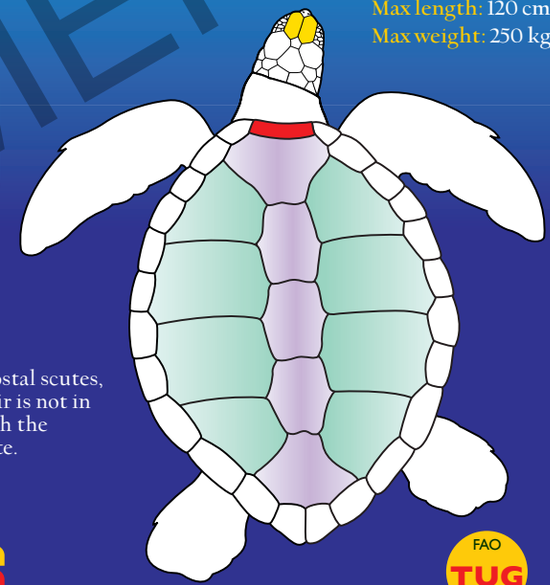
Photo: Vincent Liardet

Green turtle

*(Chelonia mydas)*




**Max length:** 120 cm
**Max weight:** 250 kg



**Carapace:**
4 pairs of costal scutes, the first pair is not in contact with the nuchal scute.

PREFRONTAL
NUCHAL
COSTAL
VERTEBRAL

FAO
TUG

# Releasing hooked turtles

**If a turtle is caught, the following steps should be taken to give it the best possible chance of survival:**

**A** ***Assess the turtle's size,***



***if large, release it or entangle it using cutter and gaff to cut tangled lines***



***if small, bring it on board with dip net***

**B** ***Place a piece of wood in the turtle's mouth so it cannot bite,***



***if hook is visible,*** cut off barb and remove hook, ***or*** use de-hooker to remove hook



***if hook is not visible,*** cut line close to mouth

**C** ***Assess the condition of the turtle before releasing it: depending on how lively it is, keep it on board for a minimum of 4 hours, and up to 24 hours***



Raise rear flippers 20 cm off deck to drain water from lungs



Place turtle in shaded location, covered with wet towels

**D** ***Identify the turtle's species name then carefully return it to the water***



**E** ***Record the interaction on your logbook and inform your fisheries department***



| | | | | | | | |
|---|---|---|---|---|---|---|---|
|  | **Flatback turtle** | 平背游龟 | 납작등 바다 거북 | | | Penyu pipih, penyu pipih tulang belakang | 平背龜 |
|  | **Green turtle** | 绿海龟 | 녹색 바다 거북 | | Penyu hijau | Billog, Katuan, Payukan, Pudno, Tabugen, Torusga, Tuod | 綠蠵龜 |
|  | **Hawksbill turtle** | 玳瑁 | 매부리 바다 거북 | | Penyu sisik | Karahan, Sisik, Sisikan, Ulinaban. | 玳瑁 |
|  | **Leatherback turtle** | 棱皮龟 | 장수 바다 거북 | | Penyu belimbing | Abi labi, Balimbing, Benerasan, Kantuhan, Kulod Manahanga | 革龜 |
|  | **Loggerhead turtle** | 蠵龟 | 붉은 바다 거북 | | Penyu anjing, penyu kepala besar, penyu kakaktua | Bulawon, Garanga. | 赤蠵龜 |
|  | **Olive ridley turtle** | 丽龟 | 꼬마 바다 거북 | | Penyu lumpur | Kalady, Lambangan, Latun, Lunok, Mulay. | 欖蠵龜 |

## Marine Turtles are Endangered Species

***Ecology:***

- Marine turtles have inhabited the oceans for over100 million years.
- Six of the seven recognised species of marine turtles can be found in the Indian Ocean.
- After spending decades at sea, females return to the beach near to where they were born to lay many dozens of eggs in 3 to 4 successive "crawls".
- Hatchlings break out of the nest chamber and enter the sea after 45 - 90 days of incubation, depending on the species.
- Only one out of a thousand hatchings will reach adulthood. The very high natural mortality rate makes the conservation of every individual encountered at sea important.
- At sea, turtles have a varied diet, depending on the species, which may include jellyfish, seagrass, sponges, coral, invertebrates and fish.

***Threats to Marine Turtles:***

- Accidental death in commercial fishing gear, including gillnets, surface longlines and drfiting FADs.
- Swallowing deadly waste, including plastics, polystyrene, cigarette filters, etc...
- Illegal poaching for meat, eggs and shell.
- Degradation and loss of nesting habitat due to development.

## Play a Part in their Conservation!

***If you are on a commercial fishing vessel:***

- Follow expert advice to reduce accidental capture of marine turtles.
- If you do capture a marine turtle accidentally, use the best techniques to increase its chance of survival once returned to the sea.
- Use these cards to identify the turtle species, record the capture in your logbook and notify your fisheries authority in order to assist in important data collection exercises.
- Check for any tags on the turtles' flippers. Record the tag number, date and location of capture. If possible, take a photograph of the animal before release and send the information to the address shown on the tag.

***If you are on a nesting site:***

- Do not disturb adult turtles as they come ashore to lay eggs. Stay in the distance and do not shine lights on them. Otherwise, they may abort their nesting attempt. If you wish to take a photograph, do so *without flash* only after the animal has begun laying eggs.
- Do not touch the turtles or their eggs.
- If you see turtle hatchlings on the beach, do not handle them as they move towards the sea.
- Keep dogs away, as they are potential predators.

***International and national conservation measures:***

- The Convention on International Trade in Endangered Species (CITES) strictly regulates international trade in any of the seven species of marine turtles.
- The Convention on Migratory Species (CMS) and its Indian Ocean Marine Turtle MoU (IOSEA) require member countries to put in place domestic conservation measures and to cooperate in common conservation programmes.
- Many countries also prohibit turtles from being hunted and sold or consumed locally, through their regulations.

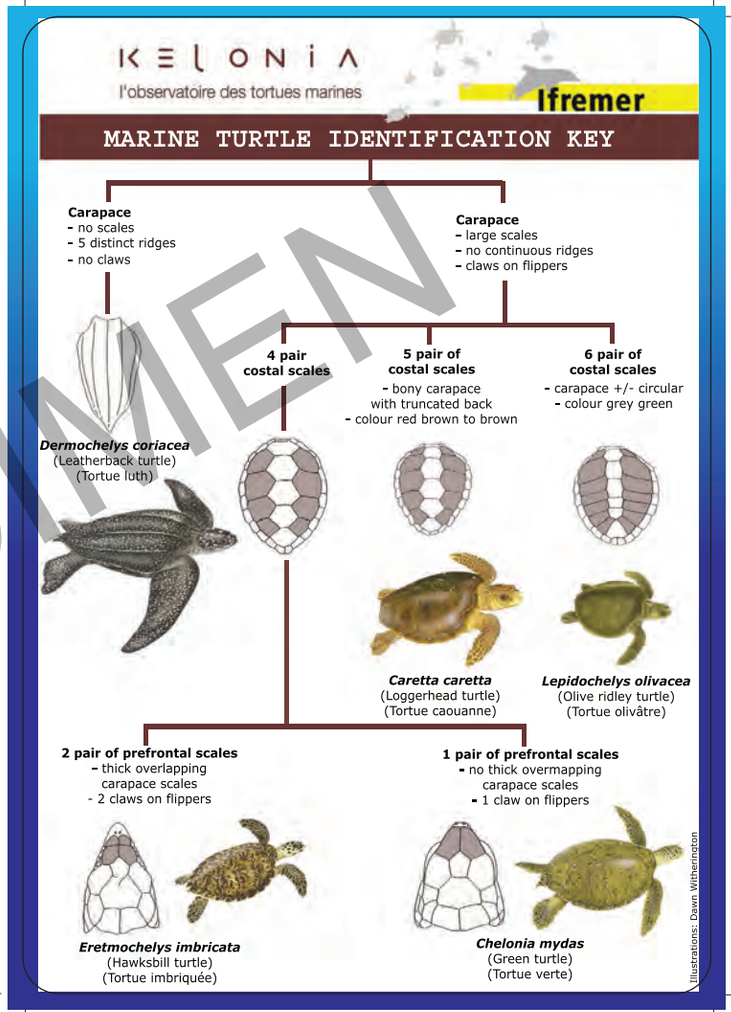
## IOTC Requirements regarding Marine Turtles

*The following are among the actions that fishers/observers are expected to take in relation to marine turtles, in line with IOTC Conservation and Management Measures.*

- Observers/fishers should record any interaction with a marine turtle noting the species involved, the date and location and report to the flag state authority.
- Observers/fishers should take all the necessary steps to release the turtle alive and in good condition.
- On longliner, observers/fishers should ensure that a line-cutter and a de-hooker are available onboard.
- Purse-seine vessels shall avoid encirclement of marine turtles and are encouraged to adopt FAD designs which reduce entanglement of marine turtles.

***For more information on Marine Turtles:***

- IOSEA Marine Turtle MoU: www.ioseaturtles.org
- KELONIA observatory of marine turtles: www.kelonia.org
- IUCN: www.iucnredlist.org / www.iucn-mtsg.org



# SEABIRD IDENTIFICATION CARDS

## FOR FISHING VESSELS OPERATING IN THE INDIAN OCEAN



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

iotc ctoi

These seabird identification cards are produced as part of a series of awareness materials developed by the Indian Ocean Tuna Commission in order to improve the reporting of interactions between vessels targeting species under the management mandate of the IOTC and seabirds.

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Email: secretariat@iotc.org Website: http://www.iotc.org

Acknowledgements: We gratefully acknowledge contributions from Birdlife International and the Secretariat of ACAP for the development of these seabird identification cards.

Seabirds are species that derive their sustenance primarily from the ocean and which spend the bulk of their time (when not on land at breeding sites) at sea. Seabirds are characterised as being late to mature and slow to reproduce; some do not start to breed until they are ten years old. To compensate for this, seabirds are long-lived, with natural adult mortality typically very low. These traits make any increase in human-induced adult mortality potentially damaging for population viability, as even small increases in mortality can result in population declines.

Eight seabird families occur within the Indian Ocean Tuna Commission (IOTC) area of competence, either regularly or as breeding populations. Of these, the Procellariiformes (albatrosses and petrels) are the species most susceptible to being caught as bycatch in longline fisheries, and therefore are most susceptible to direct interactions with IOTC fisheries.

These cards will help observers and fishers to identify seabirds caught by fishing vessels operating in the IOTC area of competence. Each card contains the common and scientific names of the seabird, its conservation status (CR - critically endangered, EN - endangered, VU - vulnerable, NT - near threatened), some information about its adult size (wingspan) and habitat as well as some key features for its identification. Distribtion maps show the approximate range for each species in the IOTC area of competence.

**Identify, record, photograph and report every seabird interaction with your vessel**

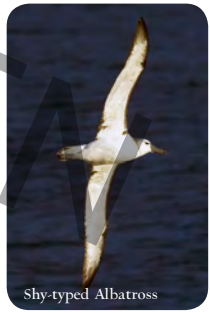
# ALBATROSSES

**Albatrosses' nostrils are NOT fused into a tube and are clearly visible as two separate openings either side of the bill. They are large birds with very long wings compared to body length.**

**Genus** *Diomedea*
Four species occur in the IOTC area. World's biggest seabirds, with very large heavy bills and wingspan. All-white backs unique amongst albatrosses (but note young Wandering Albatrosses have dark backs).

**Genus** *Phoebetria*
Two species of all-dark albatrosses with clear white eye-ring and colourful, fleshy line on bills.
*Beware: relatively small, slender bills and small, separate nostrils allow this group to be separated from the Giant Petrels, which are (mostly) also all brown. Giant Petrels have large, bulky bills with a large, fused nostril tube on the top of their bill.*

**Genus** *Thalassarche*
Medium and small albatrosses with wingspans ranging from 2m to 2.5m. All have dark backs, but Shy Albatrosses backs fade to grey (never white) over time.


Shy-typed Albatross

# Wandering Albatross

*Diomedea exulans*

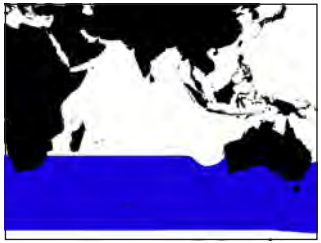
VU

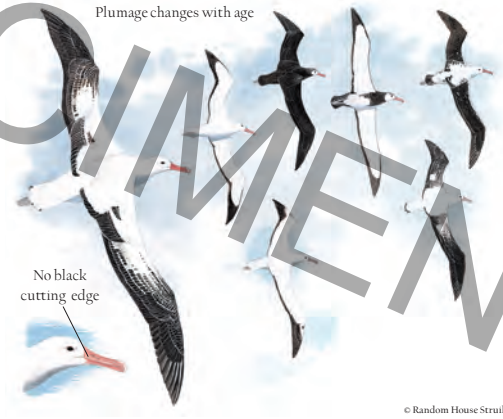
**Wingspan**: 2.5 - 3.5 m
Infrequent in shelf waters
Common in southern latitudes year-round

- NO black cutting edge on bill

*Beware: higly variable, with birds getting whiter with age, starting nearly all dark to ending nearly all white.*







# Amsterdam Albatross

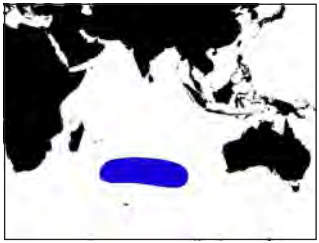
*Diomedea amsterdamensis*

CR

**Wingspan**: 2.8 - 3.4 m
Infrequent in shelf waters
Extremely rare, but generally between 20-40°S

- Black-brown all over, except face and belly ('monkey suit')
- No white on upper wings
- Black cutting edge on bill

*Beware: young Wandering Albratross have are nearly identical, but no black cutting edge on bill.*



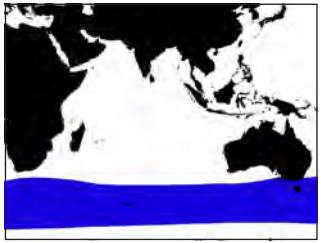
# Northern Royal Albatross

*Diomedea sanfordi*

EN

**Wingspan**: 2.9 - 3.4 m
Infrequent in shelf waters
Common in southern latitudes year-round

- White back and white tail
- No white on upperwings
- Black cutting edge on bill






ALBATROSSES

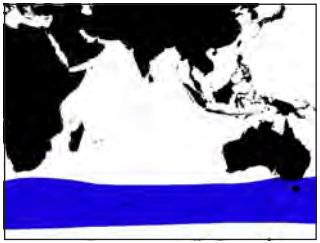
# Southern royal albatross

*Diomedea epomophora*

VU

**Wingspan**: 2.9 - 3.4 m
Infrequent in shelf waters
Common in southern latitudes year-round

- Front of wings (leading edge) white
- Whitening on wings starts from leading edge, not from middle of wing
- Black cutting edge on bill



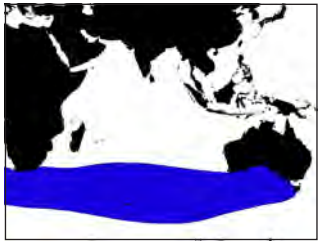
# Sooty Albatross

*Phoebetria fusca*

EN

**Wingspan**: 2 m
Restricted to deep waters
Year-round

- Uniformly brown from head to tail, except white eye-ring
- Creamy-yellow, fleshy line on lower bill (this may fade to colourless/brown when dead, so not always a reliable feature)



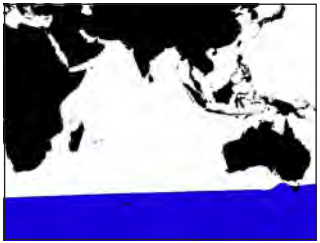
# Light-mantled Albatross

*Phoebetria palpebrata*

NT

**Wingspan**: 2 m
Restricted to deep waters
Year-round

- Dark all over, but back noticeably paler than rest of body, and, head and wings noticeably darker than other parts
- Has a pale blue, fleshy line on lower bill (this may fade to colourless/brown when dead, so not always a reliable feature)



# Grey-headed Albatross

*Thalassarche chrysostoma*

VU

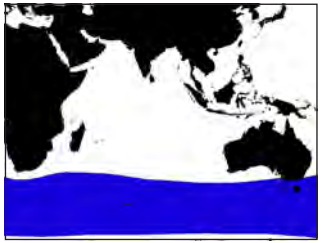
**Wingspan**: 2.2 m
Rare on continental shelf
Mainly winter

**Adult**:
- Dark-grey head and neck
- Yellow line on top of upper AND underside of lower bills
- Underwings have thick black leading edge

*Beware: Yellow-nosed Albatross has yellow line only on upper bill*

**Juvenile**:
- All-grey head but white on face
- No yellow on bill
- All-dark underwings

*Beware: Juvenile Black-browned Albatross has all-dark underwings and grayish head with white on face and all-dark bill, but bill tip is very visibly darker*








ALBATROSSES

# Indian Yellow-nosed Albatross

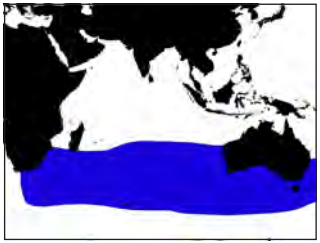
*Thalassarche carteri*

EN

**Wingspan**: 1.8 - 2 m
Common in shelf waters
All year

- White head and neck, some with light gray on sides of head
- Yellow line on upper bill only

*Beware: Atlantic Yellow-nosed Albatross (not illustrated) is rare in IOTC area, and has dark grey head with contrasting white cap (top of head)*



# Shy-typed Albatross

*Thalassarche cauta, T. steadi*

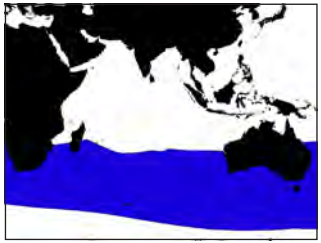
NT

**Wingspan**: 2.1 - 2.6 m
Common
Mainly winter

**Adult**:
- Very long wings with only thin black margins on underwing, otherwise completely white
- Small black notch in armpit
- Largest of the *Thalassarche* group
- Large grey bill with yellow tip only

**Juvenile**:
- Underwing pattern unique and same as for adult

*Beware: juveniles have variable amounts of grey on head and could be confused with juvenile Grey-headed or Black-browed Albatrosses, but these two have dark underwings.*



# Black-browed Albatross

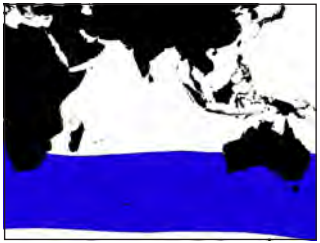
*Thalassarche melanophrys*

EN

**Adult**:
- All-orange bill with pinkish tip diagnotic
- Dark around eye creating the 'black-brow'

**Juvenile**:
- Dark feathers around eye reduced but always present
- Bill lightens toward orange with age, all intermediate stages have dark tip to bill

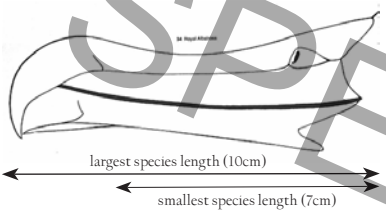
*Beware: juvenile Grey-headed Albatross which has more grey on head and lacks dark eye. Shy and White-capped Albatross have much larger, deeper bill and white underwing.*



**Wingspan**: 2.1 - 2.5 m
Common
Adult mostly winter

**ALBATROSSES**

nostrils not fused into tube and clearly visible as two separate openings either side of the bill.





Wandering Albatross

**PETRELS**

nostrils are fused in one tube on top of the bill.


Southern Giant Petrel

# PETRELS

**Petrels can be confused with shearwaters, however petrels all have short, stout, 'chunky' bills, whereas shearwater always have long, slender bills.**

**Genus** *Macronectes*

Two species of large petrels, same size as medium albatrosses. Large, heavy bills with pronounced hook and long, fused nostril tubes. Usually dark-brown, but increasingly pale from head down with age. Southern Giant Petrel has spectacular white morph with black flecks on pure white feathers. Only bill tip colour can be used to separate these two species.

**Genus** *Procellaria*

The largest members of the petrel family aside from the two Giant Petrel species. Two species, commonly occur in subtropical and southern Ocean waters of the IOTC area. Both are extremely active foraging at night and can dive very deep. They are usually responsible for returning baited longline hooks to the surface, which albatrosses will then 'steal' from them and get hooked. Because of their excellent night vision and strong diving abilities, these species are amongst the most difficult to prevent from being caught on longline hooks.


Cape (pintado)Petrel

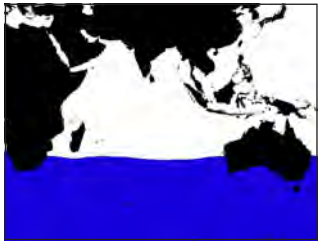
# Southern Giant Petrel

*Macronectes giganteus*

**Wingspan**: 1.5 - 2.1 m
Common
Year-round

- Albatross-sized
- Huge bill with green tip
- Nasal tubes



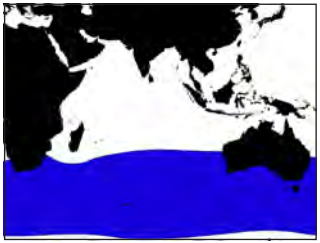


# Northern Giant Petrel

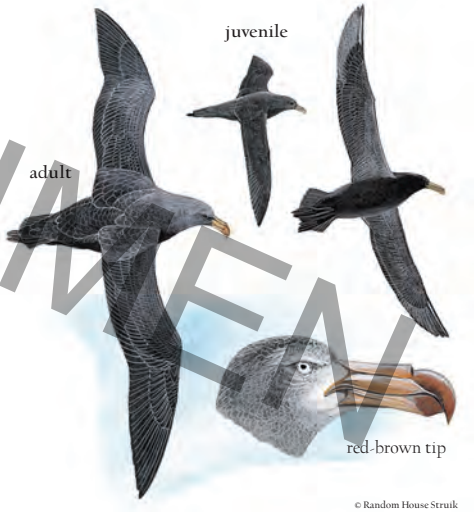
*Macronectes halli*

**Wingspan**: 1.5-2.1 m
Common
Year-round

- Albatross-sized
- Huge bill with red-brown tip
- Nasal tubes



Plumage pales with age



# White-chinned Petrel

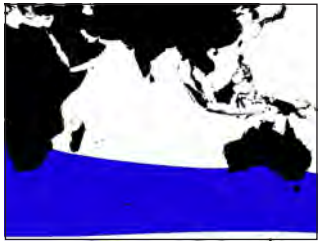
*Procellaria aequinoctialis*

VU

**Wingspan**: 1.4 m
Most common petrel
All year

- All dark with white chin
- Ivory bill with black 'saddle'
- Occasionally more extensive white chin with patch on head or on belly.

*Beware: closely related Spectacled Petrel is extremely rare in IOTC area, and easily recognizable with white, large circles around eyes and dark bill tip*








PETRELS

PETRELS

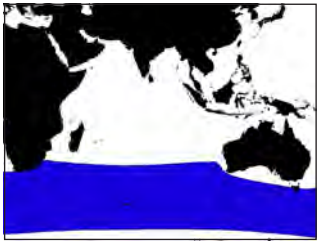
# Grey Petrel

*Procellaria cinerea*

NT

**Wingspan**: 1.4 m
Rare
Year-round

- Combination of uniform grey above and clean white body below
- Grey underwings
- Pale bill with dark tip



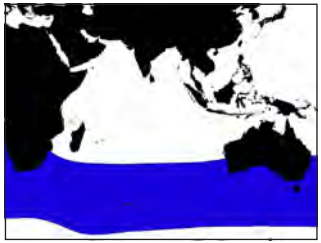
# Great-winged Petrel

*Pterodroma macroptera*

**Wingspan**: 1 m
Common
Austral Summer

- Mottled, grey-white blaze around all-dark bill diagnostic

*Beware: Sooty Shearwater, which has a silvery underwings. Many all-dark petrels could cause confusion, but ranges do not overlap much, with this species seldom occuring north of 20°S.*



PETRELS

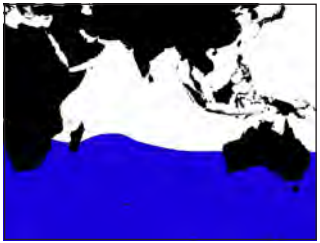
# Cape (pintado) Petrel

*Daption capense*

**Wingspan**: 0.9 m
Common
Austral Winter

- Mottled black-and-white patterns on wings and back
- Seldom recorded as bycatch in longline fisheries





**Shearwaters can be confused with petrels, however shearwaters always have long, slender bills whereas petrels all have short, stout, 'chunky' bills.**

**Genus** *Puffinus*

Four species. Small to medium sized seabirds, with long wings. Upperwings dark brown to black, and underwings white to dark brown.

Wedge-tailed Shearwater

# Sooty Shearwater

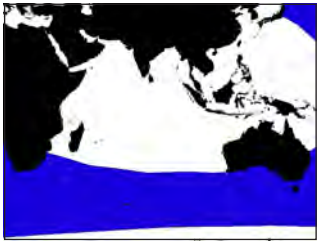
*Puffinus griseus*

NT

**Wingspan**: 1 m
Common
All year

- Silvery underwing

*Beware: Short-tailed Shearwater, which is confined to the south east of the Indian Ocean and small proportion have obvious silvery underwings*

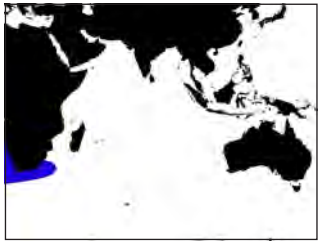


# Great Shearwater

*Puffinus gravis*

**Wingspan**: 1 - 1.2 m
Common in western Indian Ocean, absent in eastern Indian Ocean
Scarce mid-winter

- Dark, smudgy patch on white belly
- Narrow pale neck-band
- White "C" on rump



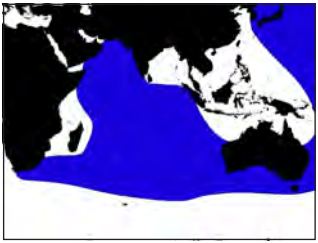



SHEARWATERS

# Flesh-footed Shearwater

*Puffinus carneipes*

- Pale pinkish feet
- Uniformly dark-brown plumage
- Pale bill with dark tip.



**Wingspan**: 1 m
Northern Indian Ocean during austral winter
South east Indian Ocean in austral summer

# Wedge-tailed Shearwater

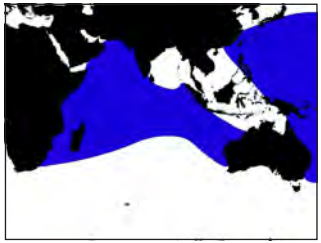
*Puffinus pacificus*

**Wingspan**: 1 m
Common in tropical waters
Year around

- When spread open, tail forms 'V', or wedge - thus its common name Wedge-tailed Shearwater

*Beware: Great-winged Petrel (see bill shape) and Sooty Sheaterwater (see underwing pattern)*

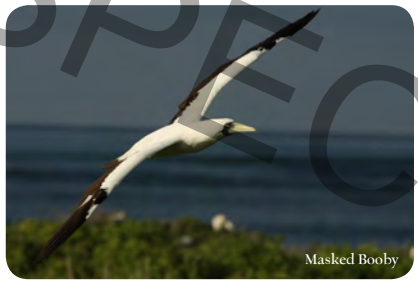




Pale-bellied morph rare in the Indian Ocean

# BOOBIES & GANNETS

Boobies and gannets (Sulids) are large and common tropical and subtropical birds that tend to occur within 200km of land. Confusion with albatrosses unlikely: all Sulids have simple, very pointed bills which lack obvious hooked end and prominent nostrils of albatrosses.



Masked Booby

Red-footed Booby

# Red-footed Booby

*Sula sula*

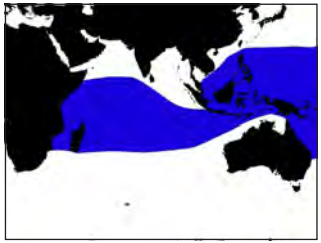
**Wingspan**: 1 m
Common
All year

**Adult**:
Bright red feet

*Beware: dark and light morphs. Cape and Australian gannets lack red feet and have black tail feathers*

**Juvenile**:
No clear underwing pattern, feet yellow, brown or reddish

*Beware: all other juvenile boobies have clearly defined underwings*

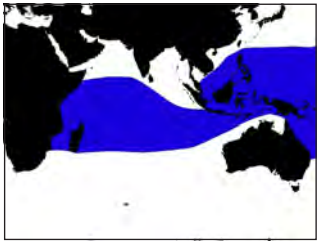


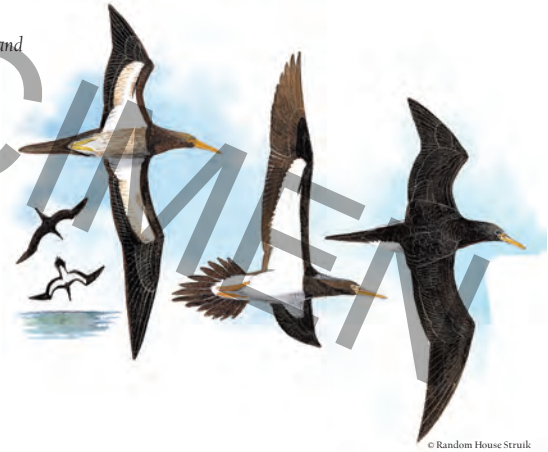
# Brown Booby
*Sula leucogaster*

**Wingspan**: 1 m
Common
All year

- Brown head upper parts and throat, extending onto upper breast

*Beware: juvenile Masked Booby, which have dark throat only and lacks dark on upper breast*





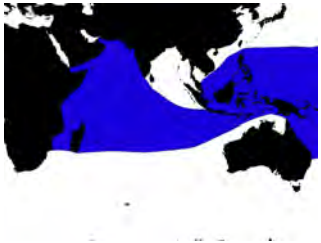
# Masked Booby

*Sula dactylatra*

**Wingspan**: 1.5 m
Common
All year in near shore tropical waters

**Adult**
- White body
- Head small black mask diagnostic

**Juvenile**
- Brown does not extend onto upper breast
- White ring around neck



# Cape Gannet

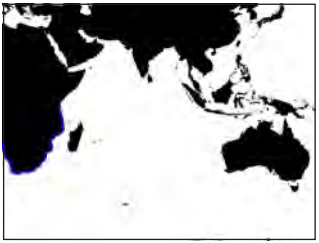
*Morus capensis*

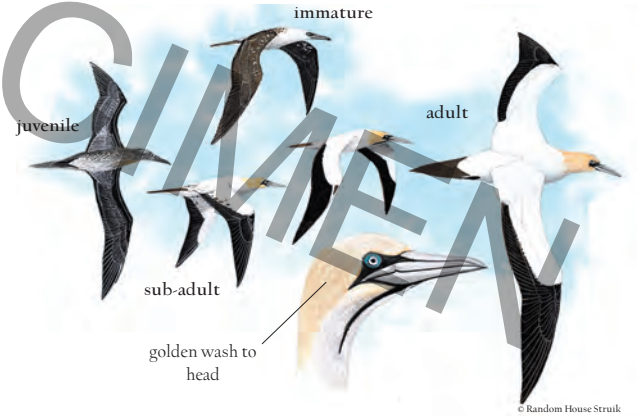
VU

**Wingspan**: 1.8 m
Common inshore, endemic to South Africa
All year

- Black tail
- Golden head with black stripe on throat
- Black feet

*Beware: Australian Gannet (not illustrated) has white outer tail feathers*





# FRIGATEBIRDS

**Frigatebirds are unmistakeable, large, dark tropical seabirds known for attacking other seabirds. Deeply forked, scissor-tails.**
**Males occasionally seen with bright red throat sacs inflated spectacularly.**
**Sexes differ.**

Male Christmas Figratebird (not illustrated) are all-black with white belly patch diagnostic. Females have black head and throat with extensive white breast and belly, and clear finger of white extending onto underwing. Juveniles are similar to females but have brownish head

Great Frigatebird

# Greater Frigatebird

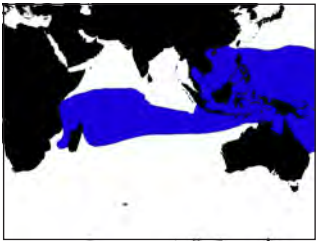
*Fregata minor*

**Male**:
- All-black plumage

**Female**:
- White on breast/belly never extends onto wings

**Juvenile**:
- Reddish head and throat with white breast, but no white extending to underwing

*Beware: Lesser Frigatebird has white extending onto underwing*



**Wingspan**: 2-2.3 m
Common inshore, but ranges widely in tropical waters
All year

# Lesser Frigatebird

*Fregata ariel*

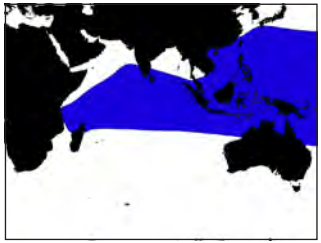
**Wingspan**: 2 m
Common inshore, but ranges widely in tropical waters
All year

**Male**:
- Otherwise all dark bird has small white patch joining underwing to body

**Female**:
- Dark belly and white upper breast extending onto underwing

**Juvenile**:
- Reddish head and throat with white breast, with white extending to underwing

*Beware: female Christmas Frigatebird which has white belly*

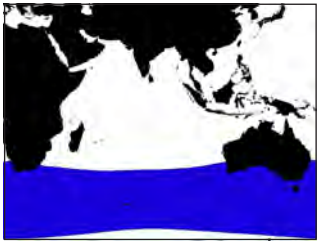


# Subantarctic Skua

*Catharacta antarctica*

**Wingspan**: 1.3 - 1.6 m
Frequent
Adult mostly austral winter

- Brown morph sub-Antarctic distinguished from South Polar (not illustrated) with great difficulty, but latter has small, circular, white blaze of feathers at base of bill.
- Pale and intermediate morph South Polar's are rarer, but have paler bodies contrasting strongly with darker wings



white window in wing

# IOTC REQUIREMENTS REGARDING SEABIRDS

(Note: requirements as of 2011. It is recommended that you check annually for modifications by IOTC)

Fishing vessels operating south of 25°S shall use at least two of the following mitigation measures, with the first one being from the first three listed:

- **night setting with minimum deck lighting (no setting after nautical dawn and before nautical dusk)**
- **bird-scaring lines or 'tori lines' (tori lines shall be deployed during longline setting)**
- **weighted branch lines (weights must be attached to all branch lines)**
- blue-dyed squid bait (all bait must be dyed using "brilliant blue"food dye)
- offal discharge control (no offal discharge during setting)
- line shooting device (permits a mainline to set slack)

Fishing vessels shall report any interaction with seabirds, including details of species

## LINE WEIGHTING SPECIFICATIONS

- Minimum 45 grams weight attached to all branch lines
- Less than 60 grams weight must be within 1 m of the hook
- 60 grams or greater and less than 98 grams must be within 3.5 m of the hook
- 98 grams or greater must be within 4 m of the hook

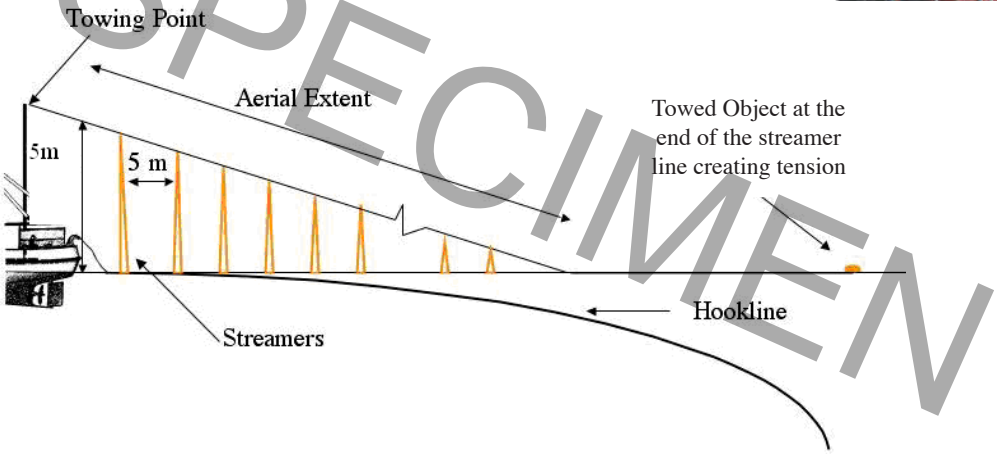
## DESIGN AND DEPLOYMENT OF BIRD SCARING LINES (TORI LINES)

**Bird-scaring line design (see diagram on the next page)**

1. The bird-scaring line shall be a minimum of 100 m in length and if less than 150 m in length will include an object towed at the seaward end to create tension to maximise aerial coverage. The section above water shall be a strong fine line of a conspicuous colour such as red or orange.
2. The above water section of the line shall be sufficiently light that its movement is unpredictable to avoid habituation by birds and sufficiently heavy to avoid deflection of the line by wind.
3. Streamers for the bird-scaring line shall be made of material that is conspicuous and produces an unpredictable lively action (e.g. strong fine line sheathed in red polyurethane tubing) and shall be suspended in pairs from a robust three-way swivel attached to the bird scaring line and shall hang just clear of the water.
4. There shall be a maximum of 5 m between each streamer pair.
5. The number of streamers shall be adjusted for the setting speed of the vessel, with more streamers necessary at slower setting speeds.

**Deployment of bird-scaring lines**

1. The line shall be deployed before longlines enter into the water.
2. The line should have an aerial coverage of at least 100 metres. To achieve this coverage the line shall be suspended from a point a minimum of 5 metres above the water at the stern on the windward side of the point where the branch line enters the water.
3. The bird scaring line shall be set so that streamers pass over baited hooks in the water. The position of the object towed shall be maintained so as to ensure, even during crosswinds, that the aerial extent of the bird-scaring line is over the branch line as far astern of the vessel as possible.
4. Because there is the potential for line breakage and tangling, spare bird scaring lines shall be carried onboard to replace damaged lines and to ensure fishing operations can continue uninterrupted


Towing Point
Aerial Extent
Towed Object at the
end of the streamer
line creating tension
5m
5 m
Hookline
Streamers