



National Plan of Action for Reducing Incidental Catch of Seabirds (NPOA Seabirds)



Department of Fisheries
Ministry of Agriculture and Cooperatives



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2024

Foreword

Seabirds live mostly in the ocean, and some seabird species are endangered or threatened because the population of seabirds is greatly reduced caused by human activities. Commercial fishing has also resulted in the depletion of fish which are the prey of seabirds. The incidental catch of seabirds from fishing activities has led to huge numbers of seabirds' mortality. Consequently, the Food and Agriculture Organization of the United Nations (FAO) has developed the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA - Seabirds). As a member of the FAO, Thailand is also aware of the impact of this issue. Therefore, the National Plan of Action for Reducing Incidental Catch of Seabirds (NPOA - Seabirds) has been developed in line with the IPOA - Seabirds for conservation and management to reduce incidental catch of seabirds by longline fisheries. Moreover, it is also applicable as a good practices for oversea Thai fishing vessels in the future.

Executive summary

The global status of seabird population has rapidly declined over the past decades. Many species and groups of seabirds are endangered. Birdlife International has found that Commercial - scale fishery is the most serious threat to seabirds. As a member of the Food and Agriculture Organization of the United Nations (FAO), Thailand has endorsed the Code of Conduct for Responsible Fisheries and has the fisheries laws as the Royal Ordinance on Fisheries B.E. 2558 (2015) and its amendments in place to aware of the importance of sustainable aquatic animal resources management in Thailand, and to comply with the international conservation and management measures, and to increase the opportunity of Thai fishing fleet for fishing outside Thai waters. Therefore, Thailand has developed this National Plan of Action for Reducing Incidental Catch of Seabirds (NPOA - Seabirds) as a practical guide for reducing the Incidental catch of seabird seabirds for Thai fishing vessels operating outside Thai waters. The NPOA - Seabirds consists of the following objectives:

Objective 1: To prevent and reduce incidental catch of seabirds from fishing

Objective 2: To comply with the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA - Seabirds) as well as to be in line with the conservation and management measures of the Indian Ocean Tuna Commission (IOTC), the Southern Indian Ocean Fisheries Agreement (SIOFA), the Western and Central Pacific Fisheries Commission (WCPFC), or other Regional Fisheries Management Organizations (RFMOs).

As such objectives, the Department of Fisheries has, therefore, developed this NPOA - Seabirds, which consists of the status of oversea fisheries of Thai fishing vessels, mitigation measures, and practical guides for reducing incidental catch of seabirds from fisheries, action plan, and review of the action plan. This is to ensure that there are conservation and management measures on seabird resources in Thailand for the long - term sustainable utilization in the fisheries sector.

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Abbreviations

CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CMMs	Conservation and Management Measures
EM	Electronic Monitoring System
ERS	Electronic Reporting System
FAO	Food and Agriculture Organization of the United Nations
IOTC	Indian Ocean Tuna Commission
IPOA-Seabirds	International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries
IUCN	International Union for Conservation of Nature
RFMOs	Regional Fisheries Management Organizations
SIOFA	Southern Indian Ocean Fisheries Agreement
VMS	Vessel Monitoring System
WCPFC	Western and Central Pacific Fisheries Commission

National Plan of Action for Reducing Incidental Catch of Seabirds (NPOA-Seabirds)

1. Introduction

1.1 International legal framework

To aware on the incidental catch of seabirds reduction, the Food and Agriculture Organization of the United Nations (FAO) has developed the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA - Seabirds), and has recommended every State to voluntary adopt it. The IPOA - Seabirds is based on the framework of the Code of Conduct for Responsible Fisheries: Article 2 recommends on how to appropriately apply to formulate and implement the international agreements as well as other legal instruments for both binding and voluntary; Article 3 describes the relationship with other international instruments; Article 7.6.9 regards to the appropriate measures of States for minimizing waste, tackling discards, ghost fishing gear, catch of non - target species, and other negative impacts on symbiosis species; and Article 8.5 deals with the catch selection through selective fishing gear.

The Resolution 12/06 of the Indian Ocean Tuna Commission (IOTC) on the reduction of incidental catch of seabirds by longline fishery has been enforced to prevent seabird bycatch from the fishery in the areas of IOTC competence below latitude 25° S where longliners must comply at least 2 of 3 mitigation measures.

The Conservation and Management Measure 2022/13 of the Southern Indian Ocean Fisheries Agreement (SIOFA) on reduction of seabirds bycatch in demersal longlines fisheries and other demersal fishing gears fisheries has also been considered in corresponding to the FAO IPOA - Seabirds. The cooperation is awakened to reduce the fishing of predatory seabirds in the Southern Indian Ocean in coordination with the regional fisheries management organization (RFMO). This conservation and management measure (CMM) is applied to all fishing vessels of the Contracting Parties, cooperating non Contracting Parties, and Participating Fishing Entities to the Agreement (CCPs) those engage in fishing in the SIOFA area below latitude 25° S; besides, the fishing vessels must comply at least 2 measures to mitigate the impacts.

The Conservation and Management Measure 2018/03 of the Western and Central Pacific Fisheries Commission (WCPFC) on mitigation of the impact of fishing for highly migratory fish stocks on seabirds. Commission members, cooperating non - members, and participating

territories (CCMs) should implement the IPOA - Seabirds and report to the commission as well as should appropriately report the status of their national plan of action for reducing incidental catch of seabirds in longline fishery.

As a member of the FAO, IOTC and SIOFA, Thailand is aware of the potential impacts on seabirds from fishing gears, not only longlines but also trawls and purse seines. Although the IPOA - Seabirds focuses on incidental catch from longlines, Thailand currently has no longliner operating outside Thai waters. However, Thailand establishes the National Plan of Action for Reducing Incidental Catch of Seabirds (NPOA - Seabirds) as a guide for reducing the incidental catch of seabirds from Thai fishing vessels operating outside Thai waters in order to cohere with international conservation and management measures and enhance the opportunities of Thai fishing vessels for operating outside Thai waters.

1.2 Seabirds status

The global status of seabirds was declining in their population over the past decades. Many species and groups of seabirds are endangered. BirdLife International, an organization cooperating with the International Union for Conservation of Nature (IUCN), has assessed the risk of extinction and found that commercial fishing is the most serious threat to seabirds. From a total of 346 seabirds species, more than 90 species are threatened and more than 30 species are near threatened; moreover, about half of all seabird species are in a state of depopulation, particularly 17 out of 22 Albatrosses species is found currently endangered.

FAO (2018) also reported that seabirds have low growth and reproduction rates, and the overall natural mortality is low. These reveal that main cause of seabirds mortality is made by human activities. The slightly increase in mortality may result in a decline in their population. There are eight families of seabirds living in the Indian Ocean area, and these seabirds (Albatrosses and petrels) are often incidentally caught by longliners operating in the IOTC area. Therefore, the FAO has provided seabird identification cards for fishing vessels operating in the Indian Ocean to help observers and fishers identify seabird species (Appendix 3).

1.3 Thai fishing vessels operating outside Thai waters

From 2013 to early 2017, there were 68 Thai fishing vessels operated in the high sea in the Indian Ocean, of which 61 fishing vessels were trawlers. The remaining of seven fishing vessels operated fishing in the IOTC area including six longliners and one purse seiner. In 2017,

all oversea Thai fishing vessels were called back for improving the regulations as well as monitoring, control, and surveillance (MCS) measures; besides, the participation as the contracting parties (CP) of SIOFA was also applied. Then, Thailand permitted oversea Thai fishing vessels to operate in the high sea again and till now; hence, there are only trawlers operate in the SIOFA area, while none of oversea Thai fishing vessel applied for the fishing license for fishing in the IOTC area.

For the Thai longliners operated in the IOTC area in the past, their fishing grounds were above latitude 25° S; however, those fishing vessels strictly complied with the IOTC resolution on reduction of incidental catch of seabirds in longline fishery.

2. Objectives and scope

2.1 Objectives

- (1) To prevent and reduce incidental catch of seabird by Thai fishing vessels.
- (2) To implement the IPOA - Seabirds and in accordance with the conservation and management measures of the IOTC, SIOFA, WCPFC or other RFMOs where Thailand is a member.

2.2 Scope

This national plan of action for reducing incidental catch of seabirds (NPOA - Seabirds) covers the longline fishery of Thai fishing vessels operating outside Thai waters.

3. Mitigation measures on incidental catch of seabirds from fisheries

Prevention and mitigation measures for seabirds is designed to reduce the risk and prevent fisheries that may cause the incidental catch of seabirds according to the conservation and management measures of RFMOs. Mitigation measures consists of the principles and guidelines as follows:

- a) Longliners operating in the competent area of RFMOs should comply with the particular RFMO's conservation and management measures for mitigating the impact on incidental catch of seabirds;
- b) All longliners operating at 23 degrees north latitude and 25 degrees south latitude in all oceans must comply with the prevention and mitigation measures for impacts on seabirds; and
- c) Implementation and improvement of seabird mitigation measures must be considered on the safety of fishers by their experiences as well.

As a party of the IOTC and SIOFA as well as a cooperating non - member of the WCPFC, Thailand determines prevention and mitigation measures for seabirds impacts as follows.

3.1 Indian Ocean Tuna Commission (IOTC)

In according to the Resolution 12/06 of the IOTC, any longliner operates fishing below latitude 25° S must use at least 2 of the following mitigation measures (from a to c):

a) Night setting longline shall be done with minimum deck lighting. No setting longline between nautical dawn and before nautical dusk. Nautical dusk and nautical dawn are defined as set out in the Nautical Almanac tables for relevant latitude, local time, and date. Deck lighting shall be kept to a minimum.

b) Deploy at least 1 bird-scaring line (Tori lines) during the entire longline setting (Appendix 1, a), the vessel is encouraged to use a second tori pole and bird - scaring line at times of high bird abundance or activity regarding the size of fishing vessels as follows:

1) Fishing vessels greater than or equal to 35 m, aerial extent of bird-scaring lines must be greater than or equal to 100 m. long streamers of sufficient length to reach the sea surface in calm conditions must be used. Long streamers must be at intervals of no more than 5 m.; and

2) Fishing vessels with a length of less than 35 m, aerial extent must be greater than or equal to 75 m. Streamers must be greater than 1 m in length, used and placed at intervals of no more than 2 m. of bird scaring line.

c) Line weighting on branch lines shall be as follows:

1) Greater than a total of 45 g attached within 1 m of the hook or;

2) Greater than a total of 60 g attached within 3.5 m of the hook or;

3) Greater than a total of 98 g weight attached within 4 m of the hook.

3.2 Southern Indian Ocean Fisheries Agreement (SIOFA)

In according to the Conservation and Management Measure 2022/ 13 of the SIOFA, any longliner operating in the area south of 25°S must apply to the prevention and mitigation on seabird impacts at least 2 of the following measures (from a to f):

a) Use white color lines to increase visibility for seabirds;

b) Do not discharge of any waste or gut of animals from the fishing vessel prior to and during the deployment or retrieval of fishing gear;

c) Install at least one bird scaring line (Appendix 1, a) during the line setting, the length of aerial extent must not be less than 150 m; the length of streamer lines must reach the sea surface

in calm sea condition, and the interval between streamer lines should not exceed 5 m. In addition, bird excluding devices (Appendix 1, b) shall be used to prevent birds entering the hauling area;

d) Do not set the line during dawn or nautical twilight (the period of dim light during early morning and late afternoon) where the exact times of nautical twilight are set forth in the Nautical almanac tables for the relevant latitude, local time and date;

e) For a longliner operates using automatic line shooter, there must be weight attached on the branch lines or must be weighted branch lines. As recommendation, 5 kg weight should be installed on hook line every 50 – 60 m, or weighted branch lines should be applied for more than 50 g/m.

f) In case, any vessel catching a total of three (3) seabirds in a single season (fishing trip) shall immediately change to night setting only.

3.3 Western and Central Pacific Fisheries Commission (WCPFC)

In according to the Conservation and Management Measure 2018/03 of the WCPFC on mitigation of the impact of fishing for highly migratory fish stocks on seabirds, there are regulations on longline fishing vessels divided by area, namely the area below latitude 30° S, the area between latitude 25° S and latitude 30° S, the area above latitude 23° N, and other areas (between latitude 25° S and latitude 23° N) with the details as follows:

3.3.1 Area below latitude 30° S

One of the following mitigation measures categories (a or b) must be applied to longliners operating in the area below latitude 30° S (with details shown in Appendix 2):

a) At least two of the three mitigation measures as follows:

- 1) Weighted branch lines;
- 2) Nighttime operation for shooting process;
- 3) Tori lines; or

b) Hook - shielding devices.

3.3.2 Area between latitude 25° S and latitude 30° S

At least one of the following mitigation measures must be applied to longliner operating in the area between latitude 25° S and latitude 30° S (with details shown in Appendix 2):

- a) Weighted branch lines;
- b) Tori Lines; or
- c) Hook - shielding devices.

3.3.3 Area above latitude 23° N

There are two categories regarding size of fishing vessels applied for this area

a) Large longliners with the length overall of 24 m or greater that operating in the area above latitude 23° N must apply at least two of the mitigation measures shown in Table 1 (including at least 1 mitigation measures from column A).

b) Small longliners with the length overall of less than 24 m that operating in the area above 23°N latitude must apply at least one of the mitigation measures from column A in Table 1 (with details shown in Appendix 2).

3.3.4 Other areas (between latitude 25° S and latitude 23° N)

For longliner fishing in the other areas (between 25°S and 23°N), one or more seabird mitigation measures shown in Table 1 are applied

Table 1 Mitigation measures

Column A	Column B
Side setting in combination with bird curtain and weighted branch lines ¹	Tori line ²
Nighttime operation for shooting process with minimum lights on the deck of vessel	Blue dyed bait
Tori line	Deep setting line shooter
Weighted branch lines	Gut discard management
Hook-shielding devices ³	

3.4 Practical guides for Thai fisheries outside Thai waters

Thailand has practical guide for the aquatic animal resources conservation and management, according to the international obligations as well as promoting cooperation with other states, private sectors, and international organizations, under the Royal Ordinance on Fisheries B.E. 2558 and amendments as follows:

¹ If side setting is applied in combination with bird curtain and weighted branch lines from Column A, these can be accounted as 2 mitigation measures.

² If tori line is selected from both Columns A and B, it is equivalent to perform tori lines as pairs simultaneously.

³ Hook-shielding devices can be used as single measures.

Section 48 Any person wishing to use a Thai vessel for the purposes of fishing outside Thai waters shall submit an application for a license to fish outside Thai waters to the Director - General or a person designated by the Director - General.

The issuance of a license pursuant to paragraph one shall be executed specifically for a particular fishing vessel. The number and types of fishing gears authorized for the purposes of fishing operation shall also be specified on the license. If an applicant wishes to engage in a fishing operation in an area under the jurisdiction of coastal state, the Director - General or a person designated by the Director - General may accord authorization therefor only when the applicant is able to present proof of a right to engage in fishing operations in the waters of any such coastal state, and when there is clear evidence that the applicant for the license is in a position to comply with the laws, rules and measures of the coastal state or the international organization concerned.

The provisions of section 39 shall apply to a license application under this section *mutatis mutandis*.

Section 49 In the case where the holder of a license for fishing outside Thai waters engages in a fishing operation in an area under the jurisdiction of a coastal state or in an area under the control and responsibility of an international organization, apart from having to comply with this Royal Ordinance, the licensee shall have to comply with the laws, rules, and standards of conservation and fisheries management of any such coastal state or international organization.

4. Action plan

4.1 Enhance knowledge on seabird resources and disseminate knowledge on mitigation measures on incidental catch of seabirds impacts from fisheries to stakeholders

4.1.1 Disseminate documents and media about general information, importance, biology and ecology of seabirds as well as human activities related to seabird resources with the goal of raising awareness of the importance of seabirds, current status of seabirds, and impacts of human activities on seabirds as well as raising public awareness of the conservation of seabird resources.

4.1.2 Develop a field manual for identifying seabirds to collect accurate scientific data.

4.1.3 Provide training courses to transfer information on conservation and management measures of RFMOs, such as IOTC, SIOFA, and WCPFC to stakeholders.

4.2 Review the laws to comply with the management and conservation measures of the Regional Fisheries Management Organization

Reviewing the laws or regulations for oversea fisheries in accordance with the requirements of RFMOs management and conservation measures to reduce the impacts of incidentally catch of seabirds from fisheries.

4.3 Data collection on incidental catch of seabirds

4.3.1. Compilation of information from the report of observer onboard

Thailand has deployed observers onboard trained in accordance with FAO guidelines. The implementation of the observers onboard is compiled to the particular RFMO. The observers onboard observe and collect data on the incidental catch of seabirds from fisheries, including taking photos and identifying species using the “Seabird Identification Cards for Fishing Vessels Operating in the Indian Ocean”; besides, biological data is recorded and reported to the DOF, Thailand.

4.3.2. Compilation of information from vessel master

The master of fishing vessels must record fishing activities every day from the date of departure from the fishing port until arrival at the fishing port through the Electronic Reporting System (ERS) and logbook covering incidentally catch of aquatic animals from fishery such as marine mammals, sea turtles, and endangered species or high risk from fishing activities, such as mobulid rays, oceanic whitetip sharks, thresher sharks, blue sharks, scalloped hammerhead sharks, and whale sharks. For seabirds, data on coordinates of incidental catch, species, number, and seabird condition including injury or death shall be recorded.

4.3.3 Establishment of a database on incidental catch of seabirds from Thai fishing vessels using collected information from observers onboard and vessel master

4.4 Monitoring, control, and surveillance of fisheries that may cause incidental catch of seabirds

4.4.1 Before leaving the port, fishing vessel, fishing gears, axially fishing gears, and other equipment are inspected according to the requirements of , including aquatic animal recuse tools and incidental catch of seabirds prevention equipment. Besides, an advice on the fishing techniques to prevent of incidental catch of seabirds is provided to vessel masters in accordance with management and conservation measures

4.4.2 Fishing operations are monitored and surveilled using the electronic system. The position of the fishing vessel is tracked through the vessel monitoring system (VMS). Moreover, the fishing behavior and other related activities are monitored through the electronic monitoring system (EM), which consists of closed - circuit television (CCTV) that continuously record activities onboard oversea Thai fishing vessels, electronic sensors installed on fishing equipment and fish handling equipment such as winches, cranes, and hatch covers. and the reporting of accidental fish or seabird catching from fishing logbook.

4.4.3 Recorded data is verified for the accuracy of information among reports obtained from fishing logbook, observers onboard, and the EM, which should be consistent among them.

4.5 Establish a network of participation from all sectors involved in management and conservation of seabird resources

4.5.1 A network among government organizations should be established to monitor and report incidental catch of seabirds from fisheries through meetings, seminars, or social media;

4.5.2 Awareness of seabird resource conservation should be raised in government organizations, private sector, and public through press release, exhibitions, corporate social responsibility activities, and social media

5. Review of the action plan

This NPOA - Seabirds will be reviewed and updated when it is necessary to be consistent with the fisheries situation or revision of management and conservation measures of .

Table 2 National plan of action for reducing incidental catch of seabirds

Activities	Goals	Responsible Agencies
1. Enhance knowledge on seabird resources and disseminate knowledge on mitigation measures on incidental catch of seabirds impacts from fisheries to stakeholders 1.1 Disseminate documents and media 1.2 Prepare a field manual for identifying seabirds 1.3 Provide training courses to transfer information on conservation and management measures of , such as IOTC, SIOFA, and WCPFC to stakeholders	Dissemination of knowledge on the current status of seabirds as well as the impacts of human activities on seabird resources	Core agency: DOF Support agency: DMCR and DNP
2. Review the existing laws to comply with the management and conservation measures of the Regional Fisheries Management Organization	Improve the national laws to comply with the management and conservation measures of RFMOs	Core agency: DOF Support agency: NFAT and TOFA
3. Data collection on accidental catch of seabird 3.1 Compile information from reported by of observer onboard 3.2 Compile information from vessel master 3.3 Establish database on incidentally catch of seabirds from Thai fisheries	A database for responsible fisheries management	Core agency: DOF Support agency: DMCR
4. Monitoring, control and surveillance on fisheries that may cause incidental catch of seabirds 4.1 Inspect fishing vessels before leaving port	Responsible fisheries in accordance with management and conservation measures of RFMOs	Core agency: DOF Support agency: -

Table 2 (continued)

Activity	Goal	Responsible person
<p>4.2 Monitor and surveil fishing operations using electronic system through the vessel monitoring system (VMS), Electronic Reporting System (ERS), and the electronic monitoring system (EM)</p> <p>4.3 Verify recorded data for the accuracy and consistency of information among data obtained from fishing logbook, observers onboard, and the EM.</p>		
<p>5. Create a network for participation of all sectors involved in management and conservation of seabird resources</p> <p>5.1 Develop and create a network among government organizations and private sectors for monitoring and reporting incidental catch of seabirds from fisheries.</p> <p>5.2 Raise awareness of seabird resource conservation in government organizations, private sectors, and public</p>	<p>There is a network for sharing information on seabirds between government organizations and private sectors.</p>	<p>Core agency: DOF Support agency: DMCR; DNP; NFAT; and TOFA</p>

Organizations' abbreviation:

- DOF = Department of Fisheries
DNP = Department of National Parks, Wildlife and Plant Conservation
DMCR = Department of Marine and Coastal Resources
NFAT = National Fisheries Association of Thailand
TOFA = Thai Overseas Fisheries Association

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Annex 1

a. Bird deterrence installed on longliner

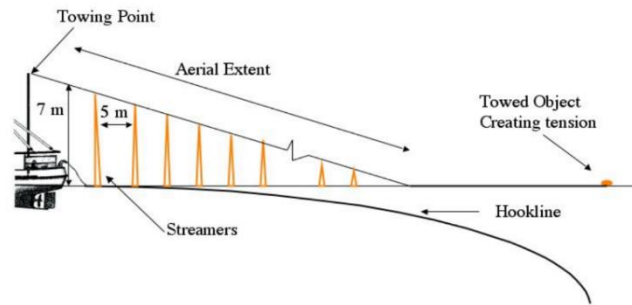


Figure 1 Diagram of Bird Scaring Streamer Line (Modified from SIOFA, 2022)

1. The aerial extent of the bird scaring line, being that part of the line supporting the streamers, is the effective seabird deterrent component of a bird scaring line. Vessels are encouraged to optimize the aerial extent of the bird scaring line and ensure that it protects the hookline as far astern of the vessel as possible, even in crosswinds.

2. The bird scaring line shall be attached to either the port or starboard sides of the vessel.

3. The bird scaring line include an object towed at the seaward end to create tension to maximize aerial coverage. The object towed should be maintained directly behind the attachment point to the vessel such that in crosswinds the aerial extent of the bird scaring line is over the hookline.

4. Each streamer should consist of two or more strands and may also have a swivel or other device at its attachment point to the bird scaring line to prevent fouling of individual streamers.

5. Swivels or a similar device should be placed in the bird scaring line in such a way as to prevent streamers being twisted around the bird scaring line.

6. A spare bird scaring line shall be carried and deployed in the event of loss or damage of a bird scaring line.

b. Bird Excluding Devices

The seabird excluding devices shall have the operation characteristics as follows:

1. prevent seabirds to fly into the area of line hauling process; and
2. prevent seabirds floating on the sea surface to swim into the area of line hauling process.

Annex 2 Specifications

1. Tori lines (South of 25 degrees south)

1.1 For vessels ≥ 35 meters total length

1.1.1 Deploy at least 1 tori line. Where practical, vessels are encouraged to use a second tori line at times of high bird abundance or activity; both tori lines shall be deployed simultaneously, one on each side of the line being set. If two tori lines are used baited hooks shall be deployed within the area bounded by the two tori lines.

1.1.2 A tori line using long and short streamers shall be used. Streamers shall be: brightly colored, a mix of long and short streamers.

- Long streamers shall be placed at intervals of no more than 5 meters, and long streamers must be attached to the line with swivels that prevent streamers from wrapping around the line. Long streamers of sufficient length to reach the sea surface in calm conditions must be used.

- Short streamers (greater than 1 meter in length) shall be placed no more than 1 meter apart.

1.1.3 Vessels shall deploy the tori line to achieve a desired aerial extent greater than or equal to 100 meters. To achieve this aerial extent the tori line shall have a minimum length of 200 meters, and shall be attached to a tori pole >7 meters above the sea surface located as close to the stern as practical.

1.1.4 If vessels use only one tori line, the tori line shall be deployed windward of sinking baits.

1.2 For vessels <35 meters total length

1.2.1 A single tori line using either long and short streamers, or short streamers only shall be used.

1.2.2 Streamers shall be: brightly colored long and/or short (but greater than 1 meter in length) streamers must be used and placed at intervals as follows:

- Long streamers placed at intervals of no more than 5 meters for the first 75 meters of tori line.

- Short streamers placed at intervals of no more than 1 meter.

1.2.3 Long streamers should be attached to the line in a way that prevent streamers from wrapping around the line. All long streamers shall reach the sea-surface in calm conditions. Streamers may be modified over the first 15 meters to avoid tangling.

1.2.4 Vessels shall deploy the tori line to achieve a minimum aerial extent of 75 meters. To achieve this aerial extent the tori line shall be attached to a tori pole >6 meters above the sea surface located as close to the stern as practical. Sufficient drag must be created to maximize

aerial extent and maintain the line directly behind the vessel during crosswinds. To avoid tangling, this is best achieved using a long in - water section of rope or monofilament.

1.2.5 If two Tori lines are used, the two lines must be deployed on opposing sides of the main line.

2. Tori lines (North of 23 degrees north)

2.1 Long Streamer

2.1.1 Minimum length: 100 meters

2.1.2 Must be attached to the vessel such that it is suspended from a point a minimum of 5 meters above the water at the stern on the windward side of the point where the hookline enters the water.

2.1.3 Must be attached so that the aerial extent is maintained over the sinking baited hooks.

2.1.4 Streamers must be less than 5 meters apart, be using swivels and long enough so that they are as close to the water as possible.

2.1.5 If two (i.e. paired) tori lines are used, the two lines must be deployed on opposing sides of the main line.

2.2 Short Streamer (For vessels ≥ 24 meters total length)

2.2.1 Must be attached to the vessel such that it is suspended from a point a minimum of 5 meters above the water at the stern on the windward side of a point where the hookline enters the water.

2.2.2 Must be attached so that the aerial extent is maintained over the sinking baited hooks.

2.2.3 Streamers must be less than 1 meter apart and be 30 centimeters minimum length.

2.2.4 If two (i.e. paired) tori lines are used, the two lines must be deployed on opposing sides of the main line.

2.3 Short Streamer (For vessels < 24 meters total length)

This design shall be reviewed no later than 3 years from the implementation date based on scientific data.

2.3.1 Must be attached to the vessel such that it is suspended from a point a minimum of 5 meters above the water at the stern on the windward side of a point where the hookline enters the water.

2.3.2 Must be attached so that the aerial extent is maintained over the sinking baited hooks.

2.3.3 If streamers are used, it is encouraged to use the streamers designed to be less than 1 meter apart and be 30 centimeters minimum length.

2.3.4 If two (i.e. paired) tori lines are used, the two lines must be deployed on opposing sides of the mainline.

3. Side setting with bird curtain and weighted branch lines

3.1 Mainline deployed from port or starboard side as far from stern as practicable (at least 1 meter), and if mainline shooter is used, must be mounted at least 1 meter forward of the stern.

3.2 When seabirds are present the gear must ensure mainline is deployed slack so that baited hooks remain submerged.

3.3 Bird curtain must be employed:

- Pole aft of line shooter at least 3 meters long;
- Minimum of 3 main streamers attached to upper 2 meters of pole;
- Main streamer diameter minimum 20 millimeters;
- Branch streamers attached to end of each main streamer long enough to drag on water (no wind) – minimum diameter 10 millimeters.

4. Night setting

4.1 No setting between nautical dawn and before nautical dusk.

4.2 Nautical dusk and nautical dawn are defined as set out in the Nautical Almanac tables for relevant latitude, local time and date.

4.3 Deck lighting to be kept to a minimum. Minimum deck lighting should not breach minimum standards for safety and navigation.

5. Weighted branch lines

Following minimum weight specifications are required:

- One weight greater than or equal to 40 grams within 50 centimeters of the hook; or
- Greater than or equal to a total of 45 grams attached to within 1 meter of the hook; or
- Greater than or equal to a total of 60 grams attached to within 3.5 meters of the hook; or
- Greater than or equal to a total of 98 grams weight attached to within 4 meters of the hook.

6. Hook-shielding devices

Hook - shielding devices encase the point and barb of baited hooks to prevent seabird attacks during line setting. The following devices have been approved for use in WCPFC fisheries:

Hookpods, which comply with the following performance characteristics⁴

6.1 The device encases the point and barb of the hook until it reaches a depth of at least 10 meters or has been immersed for at least 10 minutes;

6.2 The device meets current minimum standards for branch line weighting as specified in this Annex

6.3 The device is designed to be retained on the fishing gear rather than being lost.

⁴ Noted by SC14.

7. Management of offal discharge

7.1 Either no offal discharge during setting or hauling;

7.2 Or strategic offal discharge from the opposite side of the boat to setting/hauling to actively encourage birds away from baited hooks.

8. Blue-dyed bait

8.1 If using blue - dyed bait it must be fully thawed when dyed.

8.2 The Commission Secretariat shall distribute a standardized colour placard.

8.3 All bait must be dyed to the shade shown in the placard.

9. Deep setting line shooter

Line shooters must be deployed in a manner such that the hooks are set substantially deeper than they would be lacking the use of the line shooter, and such that the majority of hooks reach depths of at least 100 meters.

Annex 3

Seabird Identification Cards for Fishing Vessels Operating in the Indian Ocean (FAO, 2018)

Wandering Albatross VU
Diomedea exulans

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

- NO black cutting edge on bill

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

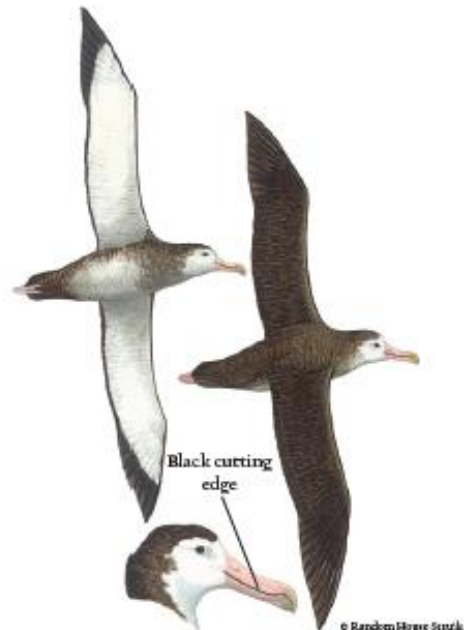


Amsterdam Albatross CR
Diomedea amsterdamensis

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

- Black-brown all over, except face, underwing and belly
- No white on upper wings
- Black cutting edge on bill

Beware: young Wandering Albatross are nearly identical, but do not have 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

Beware: young birds have dark outer tail feathers, and may have some dark feathers on head and back. Adults are indistinguishable from juvenile Southern Royal 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

Beware: Juveniles Southern Royal Albatrosses are indistinguishable from adults Northern Royal Albatrosses.



Sooty Albatross

Phoebastria fusca



- 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)



Wingspan: 2 m
Restricted to deep waters
Year-round



Light-mantled Albatross

Phoebastria palpebrata



- 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)



Wingspan: 2 m
Restricted to deep waters
Year-round



Grey-headed Albatross

Thalassarche chrysostoma



Wingspan: 2.2 m
Rare on continental shelf
Mainly winter

Adult:

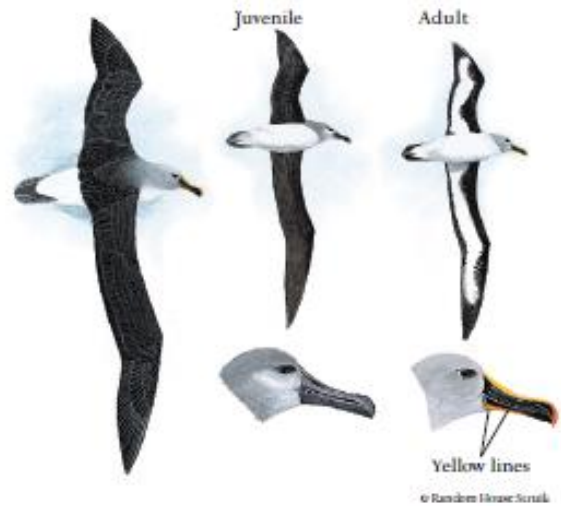
- Dark-grey head and neck
- Yellow line on top of upper AND underside of lower bills
- Underwings have thick black leading edge

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-browed Albatross has all-dark underwings and grayish head with white on face and all-dark bill, but bill tip is very visibly darker



Indian Yellow-nosed Albatross

Thalassarche carteri



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 (T. chlororhynchos, not illustrated) is rare in IOTC area, and has dark grey head with contrasting white cap (top of head)



Shy-type Albatross

Thalassarche cauta, T. steadi

NT

Wingspan: 2.1 - 2.6 m

Common

Mainly winter

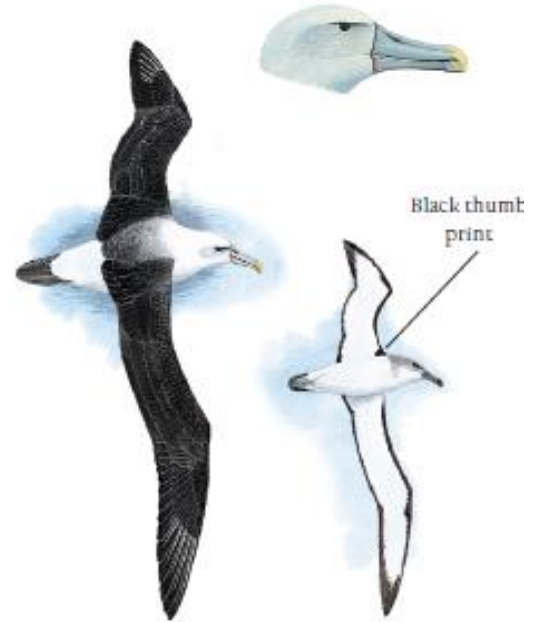
Adult:

- 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.



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Black-browed Albatross

Thalassarche melanophrys

EN

Wingspan: 2.1 - 2.5 m

Common

Adult mostly winter

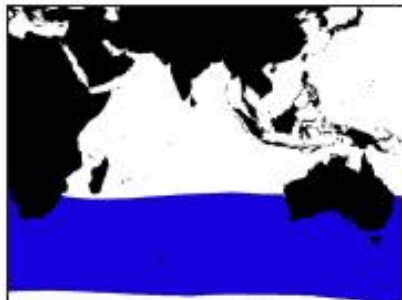
Adult:

- All-orange bill with pinkish tip diagnostic
- 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.

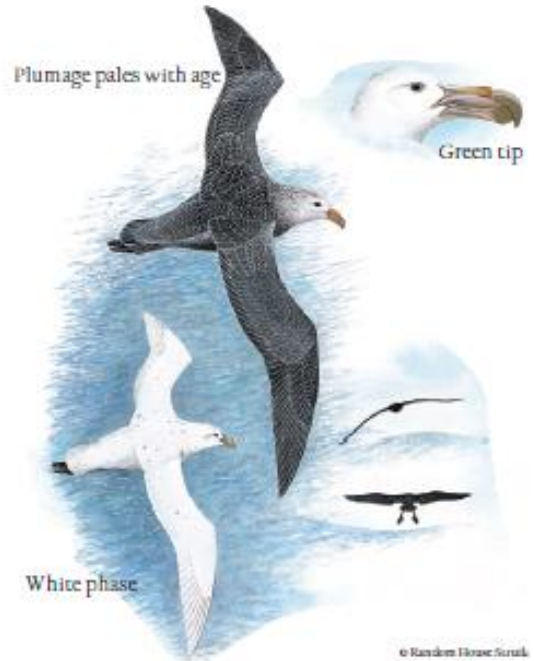
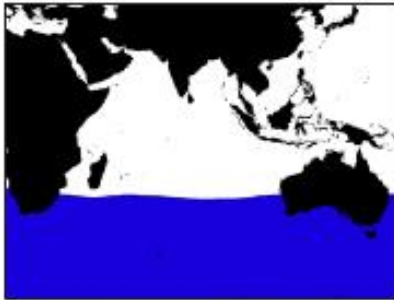


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Southern Giant Petrel *Macronectes giganteus*

Wingspan: 1.5- 2.1 m
Common
Year-round

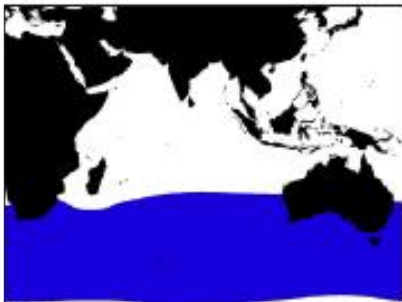
- Albatross-sized
- Huge bill with greenish tip
- Bill tip does not contrast strongly with the rest of the bill
- Nasal tubes are fused into one long tube on top of bill



Northern Giant Petrel *Macronectes halli*

Wingspan: 1.5-2.1 m
Common
Year-round

- Albatross-sized
- Huge bill with red-brown tip
- Bill tip contrasts with the rest of the bill
- Nasal tubes are fused into one long tube on top of bill



Plumage pales with age



White-chinned Petrel

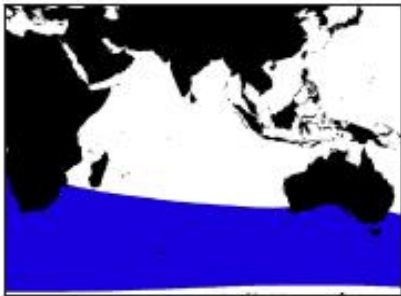
Procellaria aequinoctialis



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 (*P. conspicillata*) is extremely rare in IOTC area, and easily recognizable with white, large circles around eyes and dark bill tip.



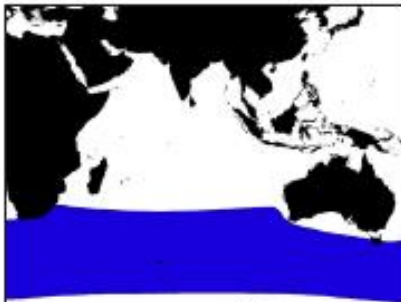
Grey Petrel

Procellaria cinerea



Wingspan: 1.4 m
Rare
Year-round

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



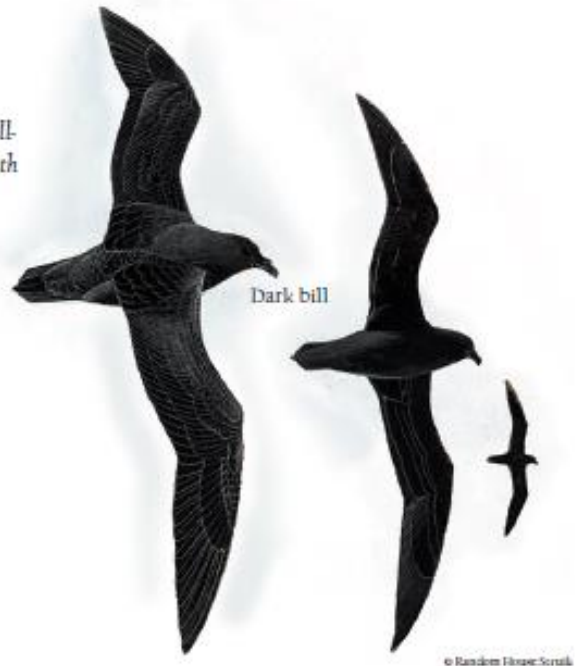
Great-winged Petrel

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 occurring north of 20°S.



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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



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Sooty Shearwater

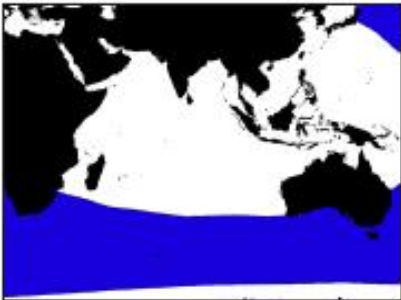
Puffinus griseus



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

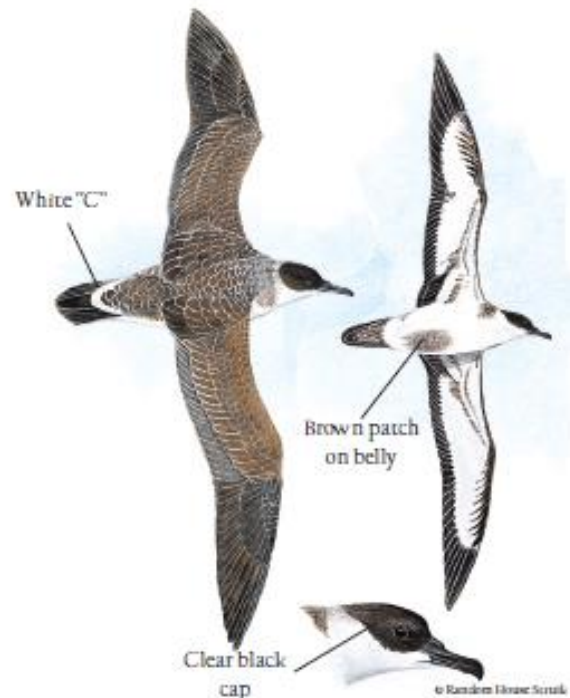


Great Shearwater

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



Flesh-footed Shearwater

Puffinus carneipes

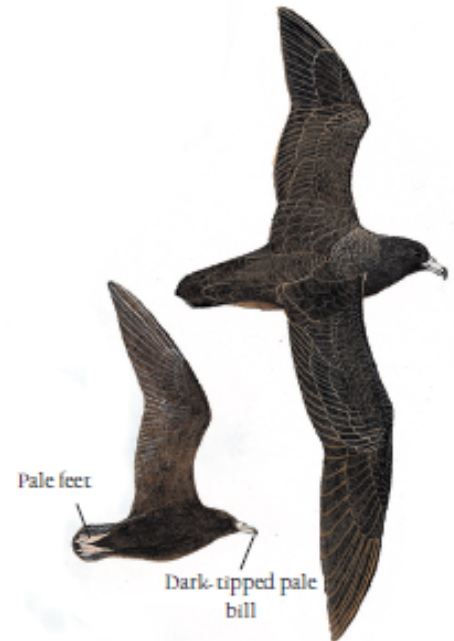
- Pale pinkish feet
- Uniformly dark-brown plumage
- Pale bill with dark tip



Wingspan: 1 m

Northern Indian Ocean during austral winter

South east Indian Ocean in austral summer



Pale feet

Dark-tipped pale bill

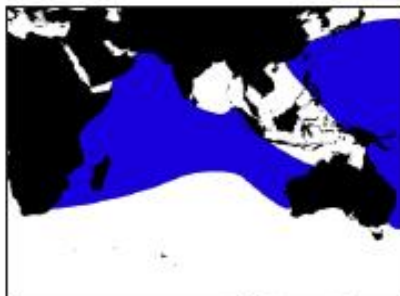
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Wedge-tailed Shearwater

Puffinus pacificus

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

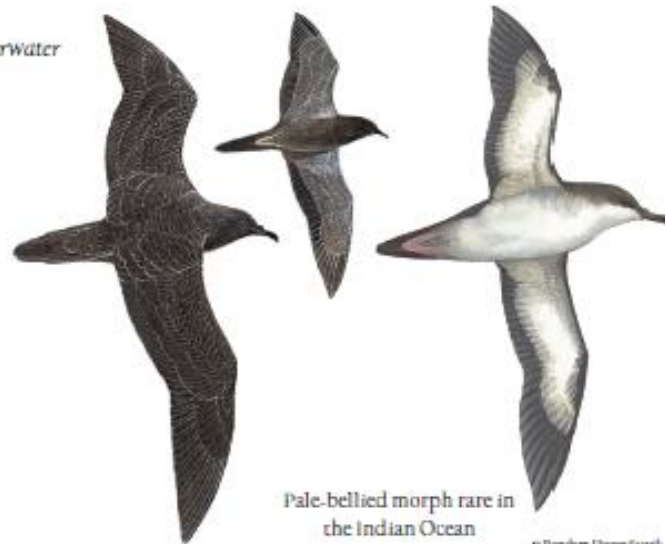
Beware: Great-winged Petrel (see bill shape) and Sooty Shearwater (see underwing pattern)



Wingspan: 1 m

Common in tropical waters

Year around



Pale-bellied morph rare in the Indian Ocean

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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



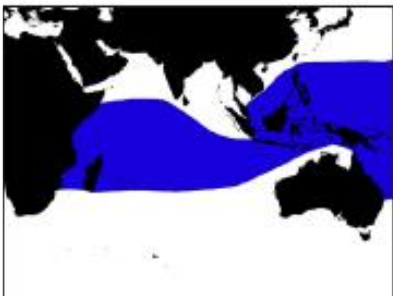
Brown Booby

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.

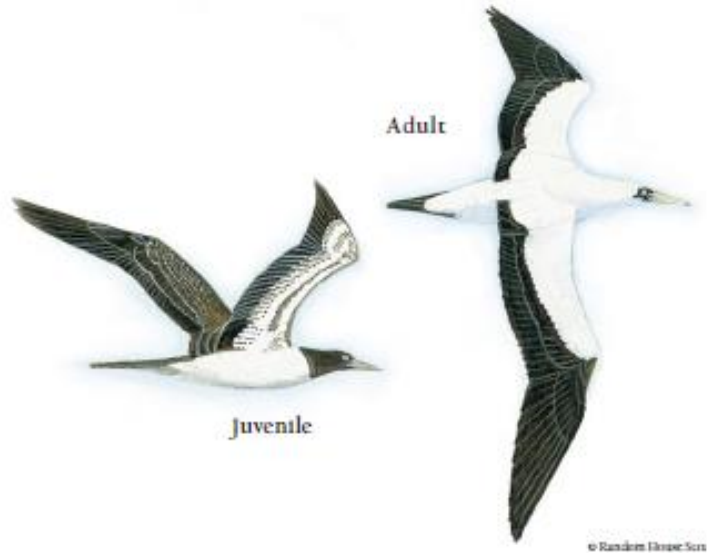
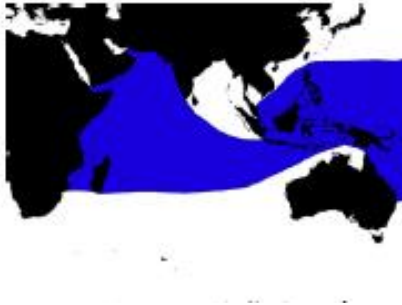


Masked Booby

Sula dactylatra

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

- Adult:**
- White body
 - Small, black face mask diagnostic
- Juvenile:**
- Brown does not extend onto upper breast
 - White ring around neck



Cape Gannet

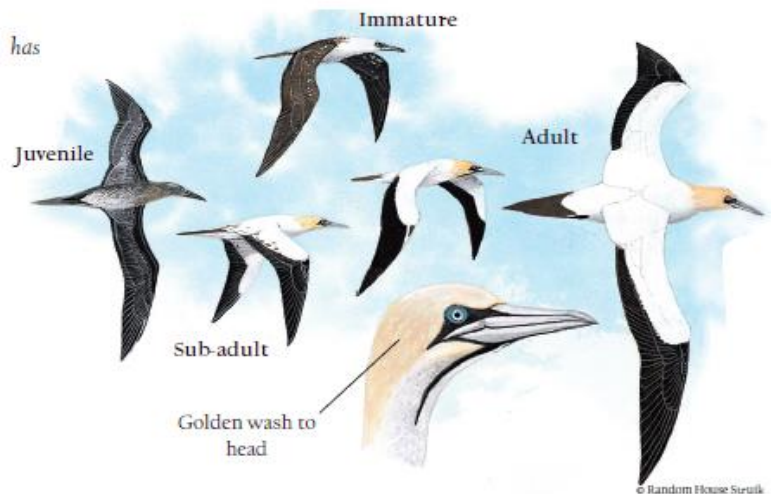
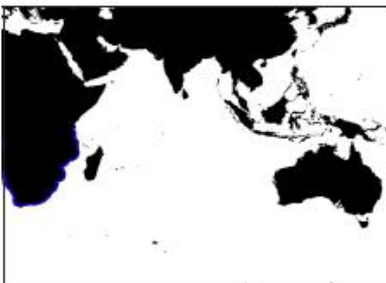
Morus capensis



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 tailfeathers



Greater Frigatebird

Fregata minor

Wingspan: 2-2.3 m

Common inshore, but ranges widely in tropical waters
All year

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



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 under wing to body

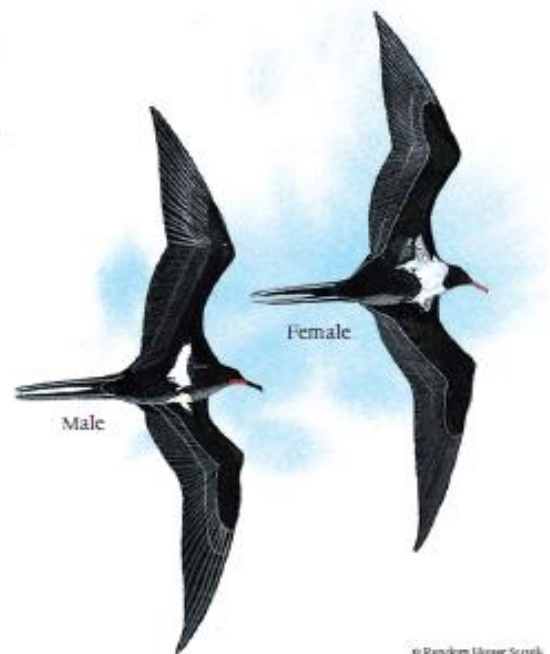
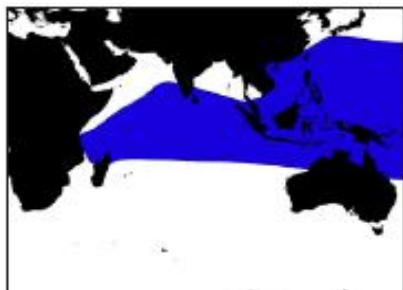
Female:

- Dark belly with white on upper breast extending onto under wing

Juvenile:

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

Beware: female Christmas Frigatebird which has white belly

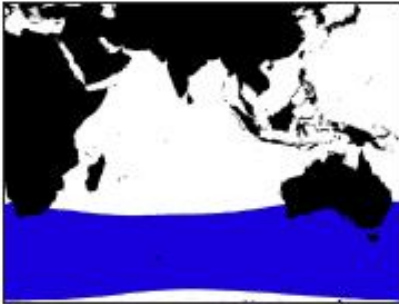


Subantarctic Skua

Stercorarius antarcticus

Wingspan: 1.3 - 1.6 m
Frequent
Adult mostly austral winter

- Subantarctic distinguished from brown morph of South Polar (*S. maccormicki*, 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



Remark:

CR - Critically Endangered

EN - Endangered

VU - Vulnerable

NT - Near Threatened

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NPOA – Seabirds

