

Comisión Interamericana del Atún Tropical Inter-American Tropical Tuna Commission



Knowledge and data gaps to the implementation of best handling and release practices for vulnerable species EB-01-01

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Outline EB-01-01

- BHRP Background
- Vulnerable Species
 - Post release survival
 - Gaps in Resolutions
- Next steps
- Recommendations
- Mobula ray identification guide



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BHRP Background

Vulnerable species = Marine mammals, seabirds, sea turtles, sharks and mobulid rays

BHRP = Best Handling and Release Practices

Post-release survival (PRS) rates

- Species specific
- Fishery interaction
- Handling & discard practices

EB-01-01

- PRS
- Resolutions
 - I. No retention and/or requirements to release unharmed
 - II. BHRP guidance for various fisheries
 - III. Efficacy of guidance



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IATTC Fisheries

1. Purse seine

- Class-6 (100% observer coverage), classes 1-5

2. Longline

- > 20 m (5% observer coverage)
- < 20 m

3. Artisanal (i.e. pangas)

- Gillnet
- longline
- Mixed gears



Resolutions for vulnerable species

Table 1. EB-01-01 IATTC and AIDCP resolutions for vulnerable species		
Species	Active Resolutions Requiring, ‘no retention’ and or ‘best practices’	Are BHRP Guidelines provided?
Consolidated Resolution on Bycatch	C-04-05 (Rev 2)	Yes. for Sea turtles in PS and LL
Cetaceans (Associated PS)	<u>AIDCP Annexes II, III, IV, VII, and VIII</u>	Yes, for small cetaceans in class-6 PS vessels
Marine mammals (other than cetaceans under the AIDCP)	None	NA
Seabirds	<u>C-11-02</u>	No
Mitigate impact of fishing on sea turtles	<u>C-04-07</u>	No
Sea Turtles	<u>C-19-04</u>	Yes
Sharks	<u>C-05-04</u>	No
	<u>C-16-04</u>	No
Management of Sharks	<u>C-16-05</u>	Yes (PS)
Silky Shark	<u>C-21-06</u>	No
Whale Shark	<u>C-19-06</u>	No
Oceanic Whitetip	<u>C-11-10</u>	No
Conservation of Mobulid Rays	<u>C-15-04</u>	Yes Annex 1 (specific to PS)

Marine Mammals (bycatch)

Fishery Interactions:

Purse seine, longline, artisanal

PRS rates:

Some data from PS released cetaceans show high survival, data from stranding networks indicate high mortality when hooked or entangled in gear

Data gaps:

Species specific interaction data, PRS data for all species, size ranges and fishery interactions

Resolutions:



No retention?	Requirements to release in manner that minimizes harm?	Guidelines provided?
Yes for small PS (AIDCP)/No	No	No

Seabird

Fishery Interactions:

Longline, artisanal

PRS rates (Table 2.a):

High at-vessel survival, some data that indicates survivorship could be high if fishing gear is removed and BHRP are used (Table 2.a)

Data gaps:

Species specific interaction data, PRS data, Regional network for stranding data, bird banding information

Resolutions: C-11-02

No retention?	Requirements to release in manner that minimizes harm?	Guidelines provided?
Yes	Yes	Recommendation to remove hooks, Requires updating

Recommendations:

'Revise Resolution C-11-02 consistent with the current state of knowledge regarding seabird interactions and mitigation techniques (see Annex 1, EB-01-01)'. [SAC-14-14]



Sea turtle

Fishery Interactions:

Purse seine, longline, artisanal

PRS rates (Table 2.b):

High at-vessel survival in PS & high PRS is assumed. PRS rates bimodal where mortality occurs within days if injuries from the hook and handling, if trailing gear is left attached to hook mortality occurs weeks to months later from the damage the line causes to internally. No data for gillnet

Data gaps:

Species specific interaction data, PRS data for all species, size ranges and fishery interactions, guidance is dependent on fishery characteristics so these data are required

Resolutions:

C-04-05 Rev2, C-04-07, C-19-04

No retention?	Requirements to release in manner that minimizes harm?	Guidelines provided?
Yes	Yes	Good guidelines Requires updating



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Sharks

Fishery Interactions:

Purse seine, longline, artisanal

PRS rates (Table 2.c):

Low PRS in PS fisheries (most are dead prior to being brought onboard), high in LL if they are in good condition at the vessel and gear is removed

Data gaps (Table 3.d):

PRS data across size ranges and fishery sectors for IATTC, handling and release practices used, effects of BRDs in PS fishery, condition and release, handling and trailing gear data

Resolutions:

C-04-05 Rev2, C-05-04, C-16-04, C-16-05, C-11-10 (OCS), C-21-06 (FAL)

No retention?	Requirements to release in manner that minimizes harm?	Guidelines provided?
OCS, FAL (PS & sometimes LL)	Yes	Guidelines for PS, Vague guidelines LL, Both sectors require updating with new data



Whale Shark

Fishery Interactions:

Purse seine (low interactions with class-6), artisanal?

PRS rates (Table 2.c):

Some data from other regions show high PRS in PS fisheries (Table 2.d)

Data gaps (Table 3.e):

Interaction data, PRS data for all size ranges and PS interactions, interaction data from artisanal fleet

Resolutions:

C-16-05 (3c), C-19-06



No retention?	Requirements to release in manner that minimizes harm?	Guidelines provided?
Prohibition on deliberate encirclement	Yes	No towing out of the net

Mobulid rays

Fishery Interactions:

5 spp., Purse seine, longline, artisanal

PRS rates (Table 2.d):

High at-vessel survival (PS, LL), Low PRS rates in PS fisheries. Some data that indicates survivorship could be high if fishing gear is removed and BHRP are used in LL

Data gaps (Table 3.f):

Species specific interaction data, PRS data for all species and fishery interaction conditions, test BRDs and strategies for returning larger animals to the water faster in PS,

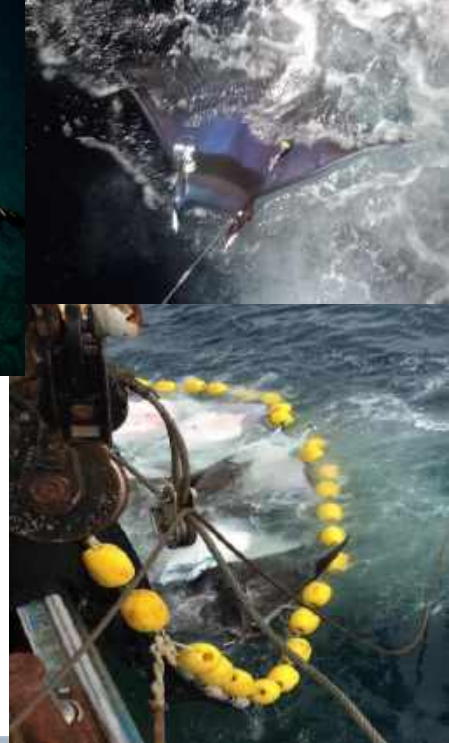
Resolutions:

C-15-04

No retention?	Requirements to release in manner that minimizes harm?	Guidelines provided?
Yes	Yes	Annex 1 for PS – Requires updating



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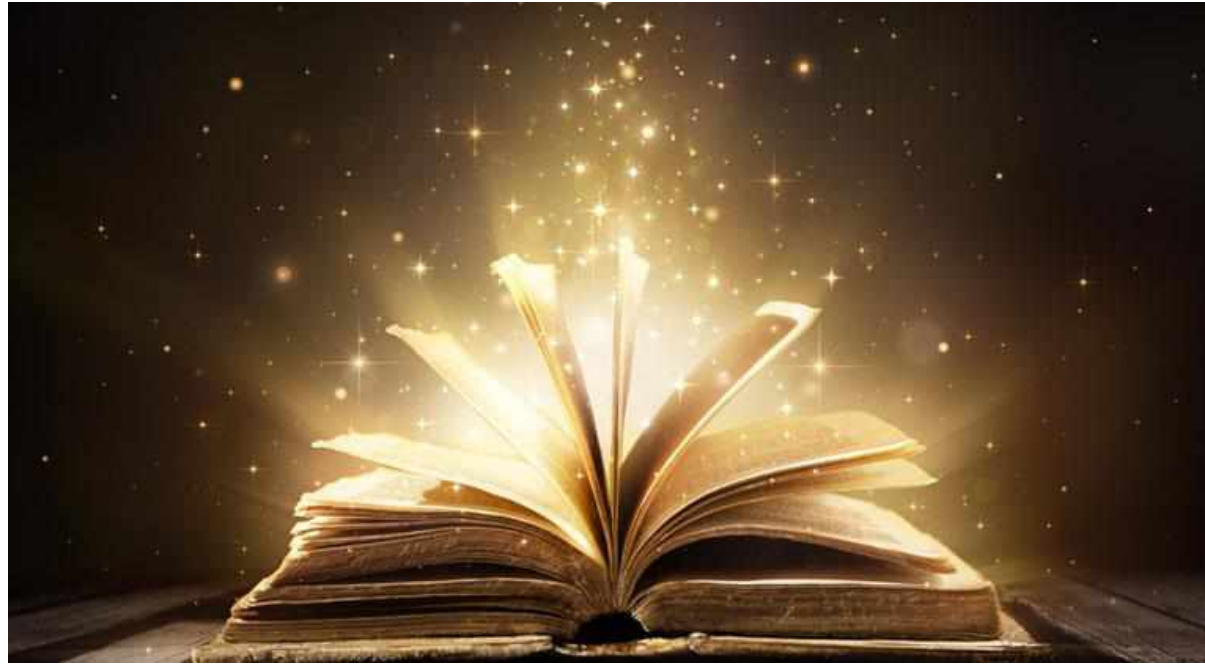


EB-01-01 Table 4. How are we doing in BHRP implementation?

Fishing gear	Handling practices well documented ¹	Do approved IATTC BHRP guidelines & PRS data exist for each taxon and fleet segment? ²							
		Marine Mammals	Sea birds	Sea turtles	Sharks	Silky shark	Oceanic whitetip	Whale shark	Mobula
Purse Seine									
Class 6	100% (observer coverage); M.1.d, M.2.c	AIDCP (cetaceans in PS associated fishery)	No	No	Yes	Yes (M.1.d)	Yes	Yes	Yes (M.2.c)
Classes 1 - 5	M.2.e (new)	No	No	No	No	Yes (M.1.d, M.2.e)	No	No	Yes (M.2.c)
Longline									
>20m	5% Observer coverage	No	Yes	Yes	Yes	Yes (M.2.b)	Yes	NA	No
Artisanal									
Longline, gillnet, mixed gear	C.4.b, C.4.b, C.4.c, M.2.a, M.2.b	No	No	Yes	No	Yes (M.2.a, M.2.b)	Yes	NA	No

Developing & Implementation of BHRP

Building a living document of BHRPs for vulnerable species captured by various fishing gears across the IATTC convention area

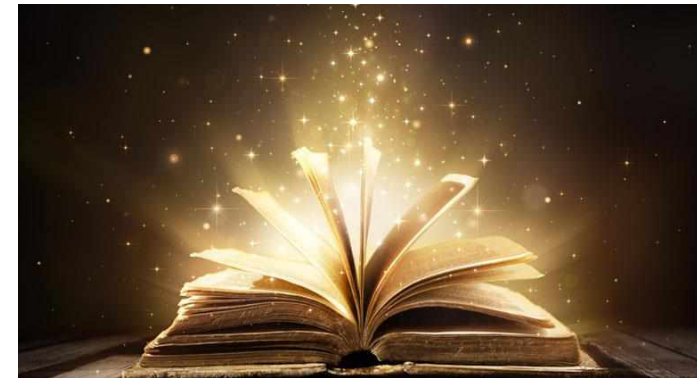


Several data gaps need to be addressed to achieve this goal
EB-01-01 provides some guidance for prioritization of research

Creating a framework for BHRPs and min. standards

Example framework & min. standards

- I. General recommendations;
- II. Specific (high-level) safe handling practice guidance for purse seine, longline (large and small scale) and gillnet fisheries;
- III. Practices that should be avoided;
 - i. Tools required for safe handling and release by fishery and vessel configuration, including a clause that requires CPCs to develop more specific BHRP guidelines with consideration of the effect of vessel configuration that encourages individualized training of crews;
- IV. Ensure that guidelines are legally binding with requirements for regular training, monitoring and enforcement ; and
- V. Produce dissemination material, including illustrations and videos to accompany the adopted guidelines and provide them to CPCs and fishing companies, requesting that they are posted in the galley or wherever crew members can view them.



Next steps – Fishery characteristics (Regional research needs)

Considering that BHRP guidance for vulnerable species are dependent on gear configurations, fishing strategies, tool availability and fisher practices, the following activities for the IATTC staff have been identified, which would facilitate the development of BHRPs:

1. Through the ongoing data improvement workshops, among others, expand data collection regarding operational fishery characteristics for all the fisheries under the IATTC, and in particular for class 1-5 purse seines, longline vessels, and gillnet vessels.
2. Review existing IATTC data collection processes to improve and ensure the collection of information on handling and release methods used, trailing gear and the condition of the animal at different stages of the fishing operation, for vulnerable species across IATTC fisheries.

Next steps-Post-release survival (Regional research needs)

The development of effective BHRP guidelines requires data on PRS rates per species, size, and fishery. Each section in the document and Table 2 illustrates where the data gaps remain for PRS of the species that are captured in the IATTC convention area. Since the list is extensive, prioritizing research efforts in collaboration with CPCs, industry and NGOs to fill these data gaps is desirable. Therefore, the following activity has been identified to be planned and carried out by the IATTC staff:

Prioritize and conduct, in collaboration with relevant stakeholders, research on PRS by species across life-history stages, fishery and handling or release methods to identify BHRPs.

Next steps-PRS (Regional research needs)

A regional telemetry database could reduce redundancy and assist with effective allocation of resources towards filling data gaps that are preventing the implementation of meaningful conservation measures. This could also improve the capacities of CPCs for study design and funding agencies' abilities to identify proposals that can generate information for the following regional research priorities, as identified by the IATTC staff.

1. Develop a regional database for telemetry data with fisheries survival implications for vulnerable species to enhance mortality estimation and the identification of BHRP.
2. Generating PRS for some vulnerable species is challenging, particularly marine mammals and seabirds. Therefore, alternative technologies for identifying fate of the individuals interacting with IATTC fisheries (e.g., photo-identification of marine mammals, seabird banding network) should be explored, along with the development of a regional network for reports on strandings and injured animals with evidence of fishing interactions.

Next steps-Review Resolutions (Regional research needs)

This review analyzed the current Resolutions for vulnerable species to assess whether release requirements had associated guidelines for fishers to release animals in a way that reduces harm or using best practices. In Section 3, Resolutions that did not have requirements to use best practices were flagged for review. Additionally, Resolutions that lacked identified best practice methods or required updating were also highlighted for review and updating. Therefore, the IATTC staff plans to carry out the following activity:

A thorough review of current Resolutions to identify where updates are needed to ensure vulnerable species are handled and released using the most up to date BHRPs.

Next steps-Collaboration, engagement (Regional research needs)

There are several common themes to the successful development and implementation of bycatch mortality reduction measures, as seen throughout the literature: i) long-standing collaborations among the fishing industry, scientists, and resource managers; ii) mandatory guidelines; iii) consistent outreach, education, and training; iv) pre and post-implementation monitoring; and v) compliance via enforcement and incentives

Based on the above, the IATTC staff recognizes the need to:

Ensure continuous engagement and collaboration with CPCs, fishing industry personnel, and other relevant stakeholders during the development of BHRP for IATTC fisheries.

Recommendations-Review Resolutions

Several IATTC Resolutions call for CPCs to encourage their fishers to release vulnerable species in a manner that minimizes harm. Therefore, the staff recommends:

Unless or until official BHRPs are adopted, methods that prevent injuries should be implemented as a minimum, such as banning the rolling of sharks and other discarded species through the power block in purse seine fisheries and leaving as little trailing gear on discarded species as possible in longline fisheries.

Recommendations-Collaboration & engagement

The IATTC staff believes that it is desirable that CPCs, fishing companies and other relevant stakeholders work together to compile existing BHRP guidelines and training materials across vulnerable taxa and fisheries as a starting point for the development of efficient, regional BHRP guidelines. In this regard, the IATTC staff recommends that :

1. CPCs and other relevant stakeholders support the IATTC staff in a survey to gather details on national efforts or programs that can help elucidate post-release survival rates in fisheries and the identification of BHRPs for vulnerable species.
2. A small *ad-hoc* group of experts be established to begin drafting BHRPs for vulnerable species captured in IATTC fisheries.

Recommendations-Development of BHRP framework and min standards

The adoption of a framework and minimum set of standards for BHRP would ensure that BHRP are harmonized with regional efforts, feasible, and enforceable across all CPCs, as appropriate:

A framework and minimum set of standards for BHRPs be adopted and implemented, including the tools required to be carried on board for their implementation.

Welcome data, input & feedback

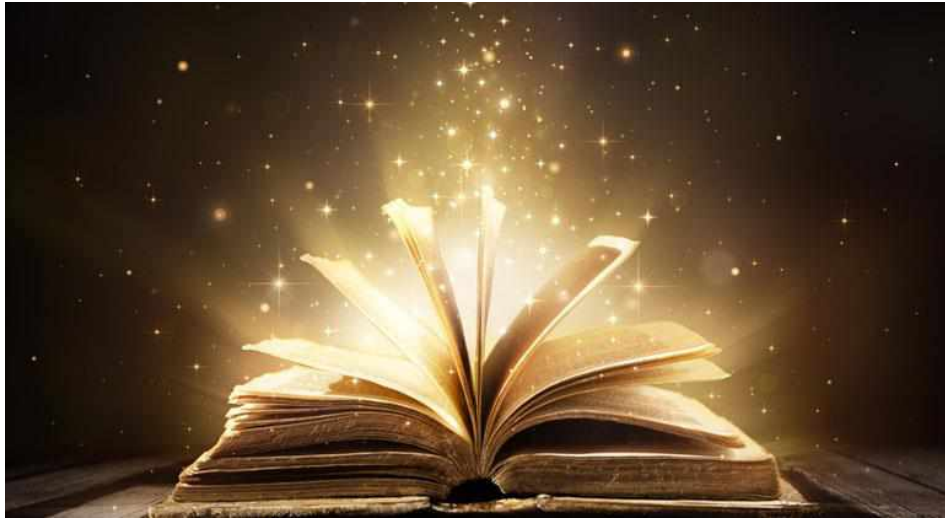


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New Topic



Field Guide to Manta & Devil Rays in Pac Ocean Fisheries



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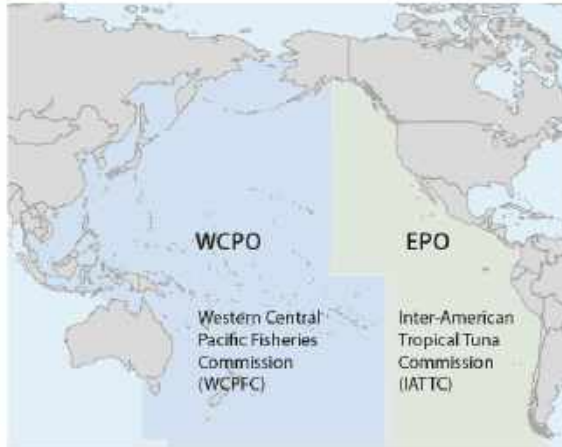


Field Guide to Manta & Devil Rays in Pac Ocean Fisheries

SPECIES BY REGION

WCPO Western Central Pacific Ocean

Mobula birostris
Mobula alfredi
Mobula tarapacana
Mobula mobular
Mobula thurstoni
Mobula eregoodoo
Mobula kuhlii



EPO Eastern Pacific Ocean

Mobula birostris
Mobula tarapacana
Mobula mobular
Mobula thurstoni
Mobula munkiana

Note that on species distribution maps (pages 23–37), darker blue areas indicate confirmed range; while lighter blue areas indicate expected range.

Of the eight mobulid species that occur in the Pacific Ocean, only four are found in tropical and sub-tropical waters across the whole ocean basin, *Mobula birostris*, *M. tarapacana*, *M. mobular* and *M. thurstoni*. While *M. alfredi*, *M. eregoodoo* and *M. kuhlii* are only found in the Western Central Pacific Ocean (WCPO). And *M. munkiana* is only found in the Eastern Pacific Ocean. Mobulids are often captured in tuna fisheries. In the Pacific Ocean, tuna and tuna like fisheries are managed by two Regional Fishery Management Organizations (RFMO): Western Central Pacific Fisheries Commission (WCPFC; wcpfc.int) and the Inter-American Tropical Tuna Commission (IATTC; iatfc.org). The convention areas of these RFMOs are shown above. **Both RFMOs have recognized the vulnerability of all mobulids to overfishing and as such have implemented conservation and management measures that ban the retention of all mobulid ray species, and identified best handling and release recommendations for returning them to the sea unharmed.

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Region-specific Species ID

2a In which region was this specimen caught?

Western Central Pacific Ocean → 2b

Eastern Pacific Ocean → *Mobula birostris* (p.22)

2b Fully black dorsally & ventrally, except for a white patch toward gill area ventrally.

YES → 3 (p.11)

NO → 2c

2c Dorsal white shoulder markings form two mirror image right-angle triangles creating a 'T' in black.

YES → *Mobula birostris* (p.22)

NO → *Mobula alfredi* (p.24)

If present, ventral spots clustered around lower abdominal region. Gill covers (particularly 5th gill) usually with black shading/flaring. Knob-like bulge housing vestigial spine at base of tail. *Leucistic specimens have a lighter dorsal and ventral colouration (see p.18).

If present, ventral spots often between branchial gill slits and across trailing edge of pectoral fins and abdominal region. Dorsal white markings may fade rapidly after death. Trailing edge of pectoral fins falcate. Slight depression at base of tail, although occasionally a small bulge and vestigial spine present. *Leucistic specimens have a lighter dorsal and ventral colouration (see p.18).



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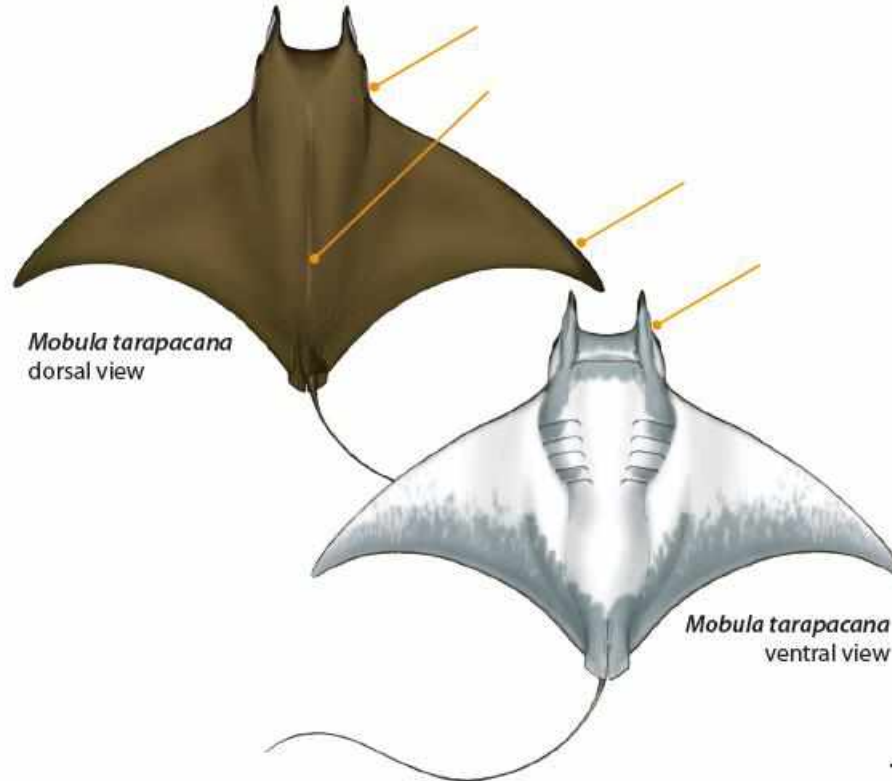
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5 Uniform brownish, or grey-olive green dorsal color (no white fin tip). Grey ventral shading on posterior margin of pectoral fins, white anteriorly.

YES → *Mobula tarapacana* (p.26)

Large: max. size > 380cm DW. Long-necked appearance; trailing edge of pectoral fins distinctly falcate; grey/ silvery mouth and underside of head. Tail shorter than DW and covered in scales. Spiracle in an elongated longitudinal slit under a ridge above and behind margin of pectoral fin where it meets body. Distinctive pronounced ridge along dorsal midline.

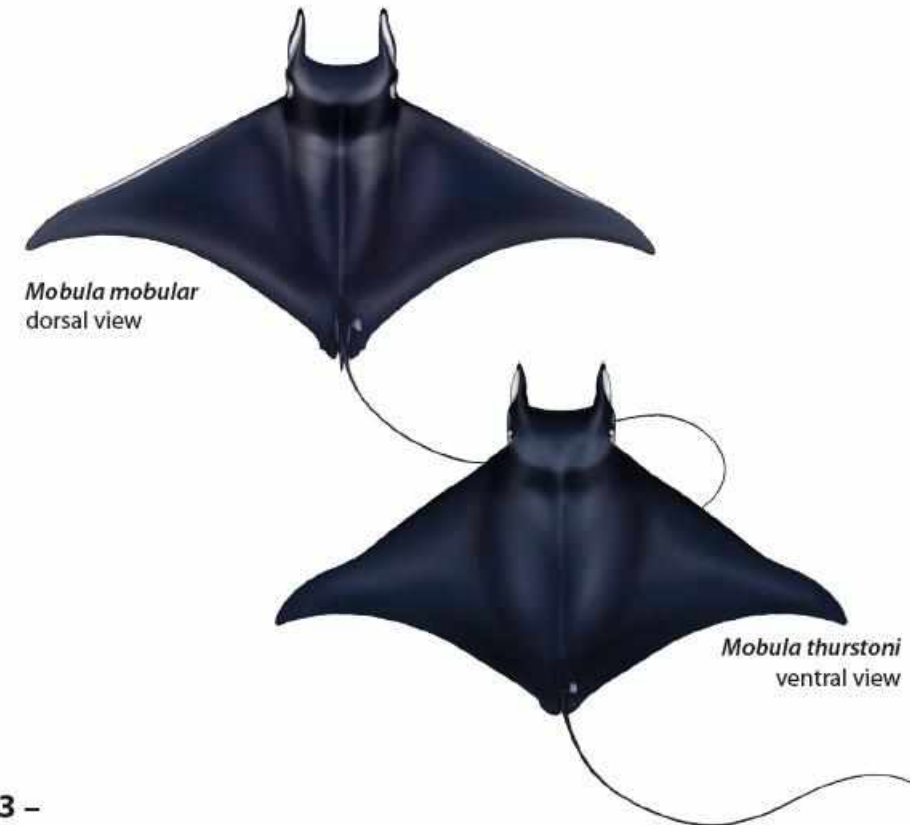


Mobula tarapacana
dorsal view

Mobula tarapacana
ventral view

NO → 6 (p.14)

Dark or bluish dorsal color, dorsally. White-tipped dorsal fin.



Mobula mobular
dorsal view

Mobula thurstoni
ventral view



Questions

