

SENTINELS OF THE SEA

A Field Guide to India's Marine Cetaceans

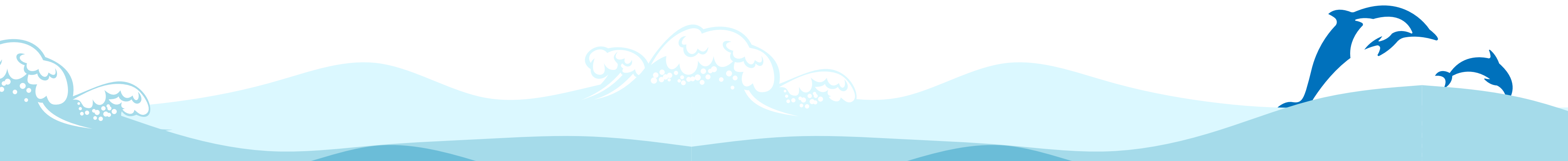


Indian Council of Agricultural Research
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE, KOCHI

Foreword

Marine mammals are sentinels of ocean health. As long-lived apex predators, they reflect broader shifts in oceanographic conditions, prey availability, and the intensifying impact of anthropogenic pressures. Consequently, a precise understanding of their distribution, abundance, and behaviour is fundamental to conservation planning and the implementation of effective management strategies. The project ‘Marine Mammal Stock Assessment in India’ was initiated in 2021 by CMFRI and is focused on studying marine mammal population, species diversity, and ecology across Indian waters. A core objective of this initiative is to strengthen regional capacity through standardised monitoring and research. This field identification guide is designed to ensure consistent and accurate species identification during coastal and offshore surveys. By synthesizing real-time field observations with published data, including foundational contributions from the ICAR-Central Marine Fisheries Research Institute and collaborating researchers, this guide provides diagnostic morphological characteristics and illustrative references to facilitate rapid identification. By promoting standardized documentation, this resource strengthens the baseline datasets essential for long-term monitoring and the sustainable management of India’s marine biodiversity. We gratefully acknowledge the dedication of the partner institutions, researchers, and field teams whose collective expertise made this guide possible.

The Marine Mammal Stock Assessment in India Project, 2026





Tips to Use This Guide

Guide Categorization

The species included in this guide are systematically arranged by suborder and family, starting with whales and proceeding through dolphins, porpoises, and sea cow.

Colouration of species

Colour can be a helpful identification feature in the field; however, it cannot solely help to classify. Colour patterns may fade rapidly after death, and can appear distorted due to lighting, water conditions, or distance during visual observation. Always confirm colour-based identifications with additional features such as body shape, fin size, and markings.

Length and Weight

Length: All measurements refer to the maximum recorded total length for each species, given in metres (m).

Weight: All measurements refer to the maximum recorded body weight, given in kilograms (kg).

The specified dimensions (length, weight, and height) are appropriate to the intended scale; all measurements are derived from cited references and may vary.

Morphometrics and Diagnostic Features

Detailed morphometric features are directed with lined annotations throughout the guide. These highlight diagnostic characteristics such as fin shape, body proportions, beak length, and fluke structure, which are key for distinguishing between similar species.

Additional facts

Each page of the guide includes a dedicated information panel in the bottom-right corner, providing additional facts and quick-reference tips for identification.





Glossary of terms

- **Head:** The front portion of the animal's body, including the beak or rostrum, melon, eyes, and blowhole region; its shape and profile.
- **Melon:** The round, fatty structure on the forehead of toothed whales and dolphins that functions in sound propagation and echolocation.
- **Beak:** The elongated snout or rostrum seen in many dolphin species; its length, shape, and demarcation from the forehead.
- **Blowhole:** The specialized nostril(s) located on the dorsal (top) surface of a marine mammal's head, through which the animal breathes.
- **Blow:** The visible plume of water vapor, mucus, and air expelled from a whale's lungs through the blowhole(s) during exhalation, also known as spout.
- **Baleen Plates:** Dense comb-like structure hanging down from the upper jaws of the large baleen whales.
- **Cape:** A region of contrasting coloration extending over the back and sides, typically separating darker dorsal color from lighter flanks (e.g., in common dolphins).
- **Crease:** A distinct fold or indentation in the skin, often referring to the line between the melon and the beak in some dolphin species.
- **Tubercle:** Rounded, wart-like bumps found on the heads and jaws of humpback whales, each containing a single sensory hair (vibrissa).
- **Throat Grooves:** Longitudinal pleats or folds of skin running along the throat and underside of the body (mainly in baleen whales) that expand during feeding to allow intake of large volumes of water.
- **Flipper:** The forelimb of a marine mammal, adapted for steering and maneuvering; also called as pectoral fin. Shape, size, and markings can assist in species identification.
- **False Gill:** A pale, crescent-shaped marking located behind the eye in some cetaceans (e.g., killer whales, pilot whales); may resemble the gill slit of a fish.
- **Dorsal Fin:** The fin located on the midline of the back; its shape, position, and size are key features for distinguishing species and individuals.
- **Mottling:** Irregular patterns or patches of lighter or darker colouration on the skin; can vary among individuals and species.
- **Tail Flukes:** The horizontal lobes of the tail used for propulsion; the trailing edge shape, notch depth, and underside patterning.
- **Tail Stock:** The tail stock is the tapered muscular rear portion of the body located between the dorsal fin and the tail fluke that powers the movement of marine mammals during swimming.





General Characters

Dolphins

Slender body with a well-defined beak/snout. Prominently curved dorsal fin. Conical teeth, suited for grasping fish. Typically, active swimmers, playful groups.



Baleen Whales

Very large body size (bigger than toothed whales on average). Double blowholes. No teeth, instead have baleen plates for filter feeding. Small or no dorsal fin, often seen in small groups.



Beaked Whales

Mid-sized whales with a long, narrow beak. Small dorsal fin positioned far back on the body. Tiny flippers that tuck neatly into body recesses. Few teeth (usually just 1-2 pairs in the lower jaw).



Porpoises

Small and stocky body shape. No beak, rounded face and head, Spade-shaped teeth. Triangular dorsal fin (when present), less acrobatic.



Dugong

Streamlined, smooth body with paddle-like flippers. Fluked tail shaped like a whale's (not rounded like manatees). Down-turned snout for grazing seagrass. Found in shallow coastal waters over seagrass beds.

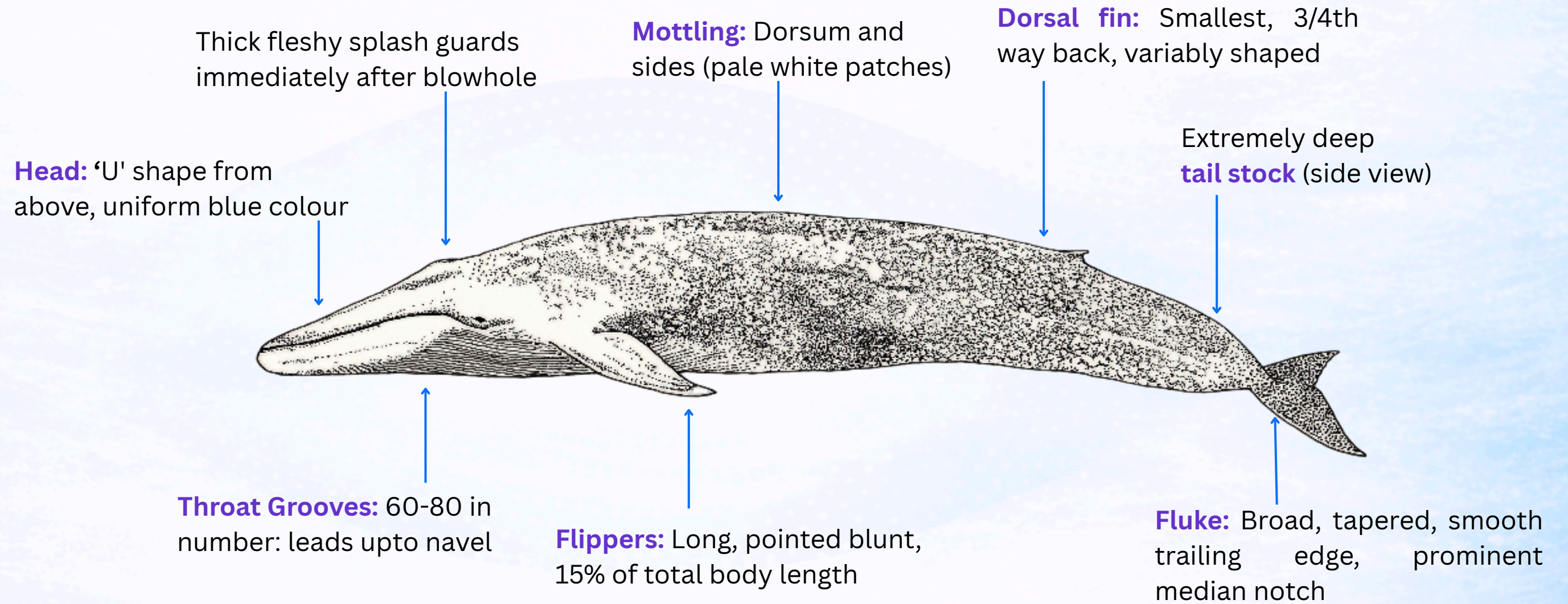


WHALE

SUBORDER: MYSTICETI

FAMILY: BALAENOPTERIDAE

Blue Whale *Balaenoptera musculus*



Adult Length: ~ 30 m
Adult Weight: ~180,000 kg

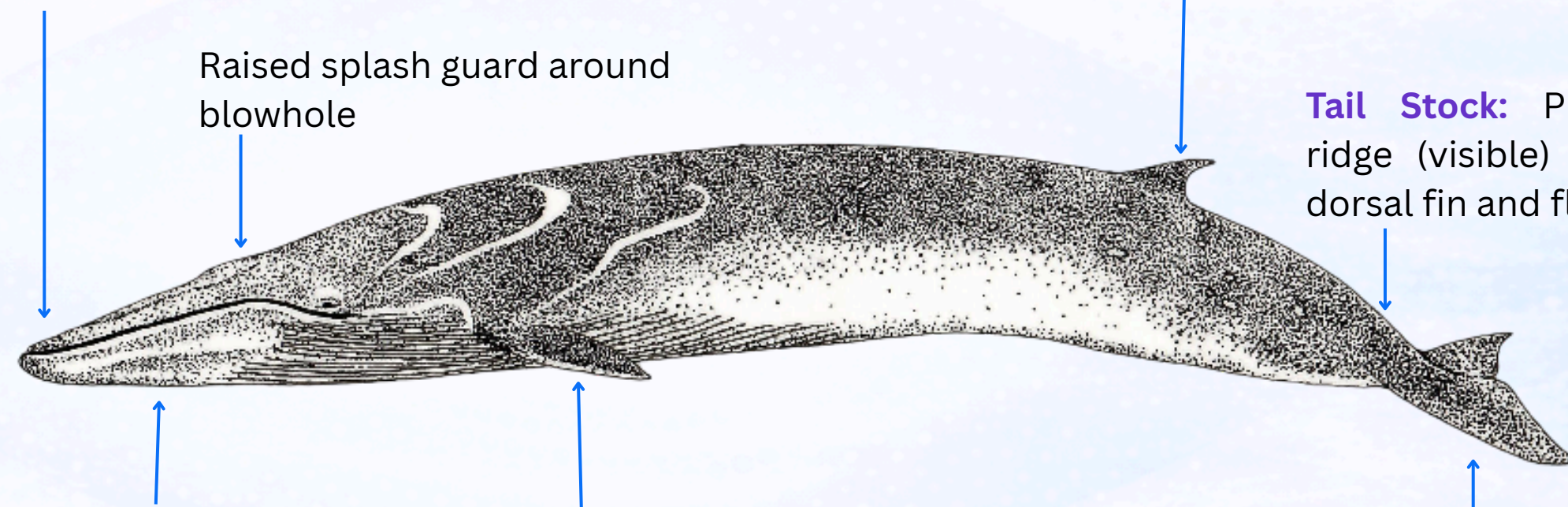


The blue whale's body is bluish grey on the back and light grey underneath. Its flippers are bluish grey on top with a subtle white border and light white on the underside.

Fin Whale

Balaenoptera physalus

Head: 'V' shaped from above, pointed and light grey, chevrons, dark eye and ear stripes, white jaw in right side, dark in left side



Dorsal Fin: Tall, falcate, farther than *B. musculus*, rise at shallow angle

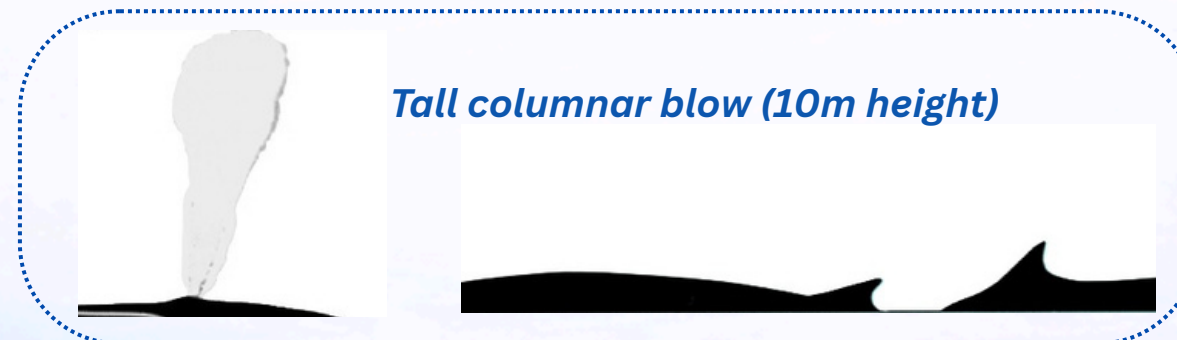
Tail Stock: Prominent ridge (visible) between dorsal fin and flukes

Throat Grooves: 50-100 in number which leads upto upto navel

Flippers: Long, pointed, tapered

Fluke: White with grey border (ventral)

Adult Length: ~26 m
Adult Weight: ~80,000 Kg



Tall columnar blow (10m height)

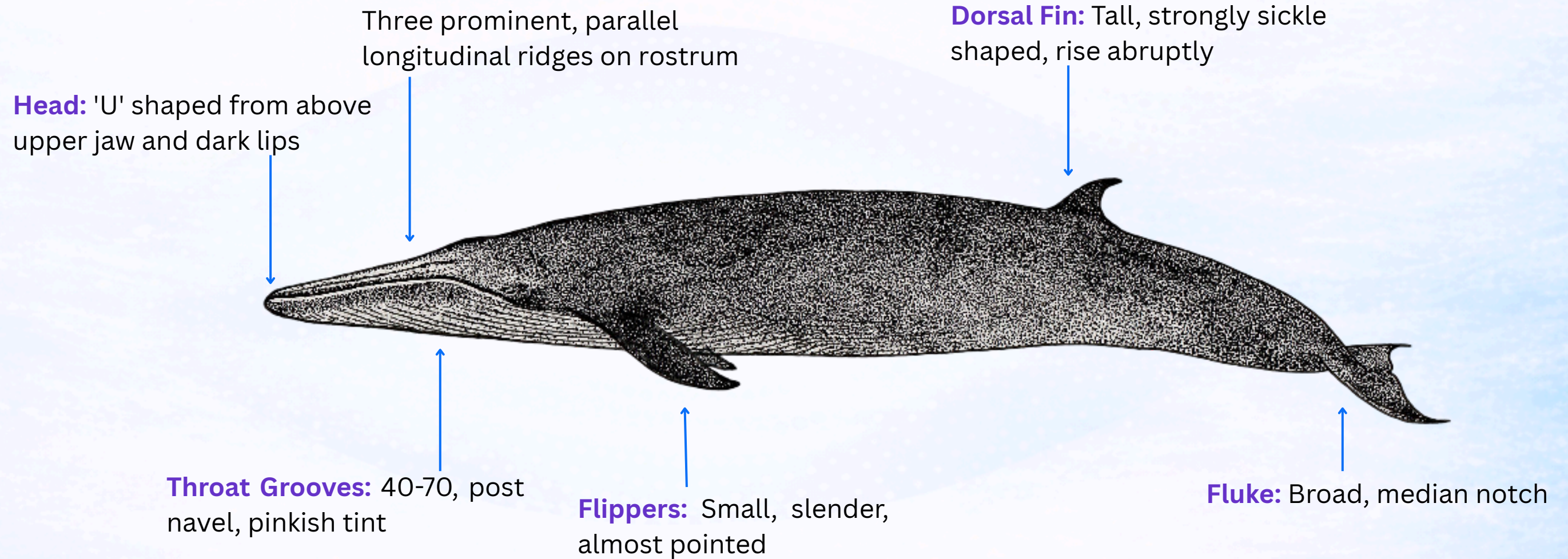
The body is dark grey to brownish grey on the dorsal side, shading to white towards the ventral side. The flippers are dark grey on the dorsal surface and light grey to white on the ventral surface.

WHALE

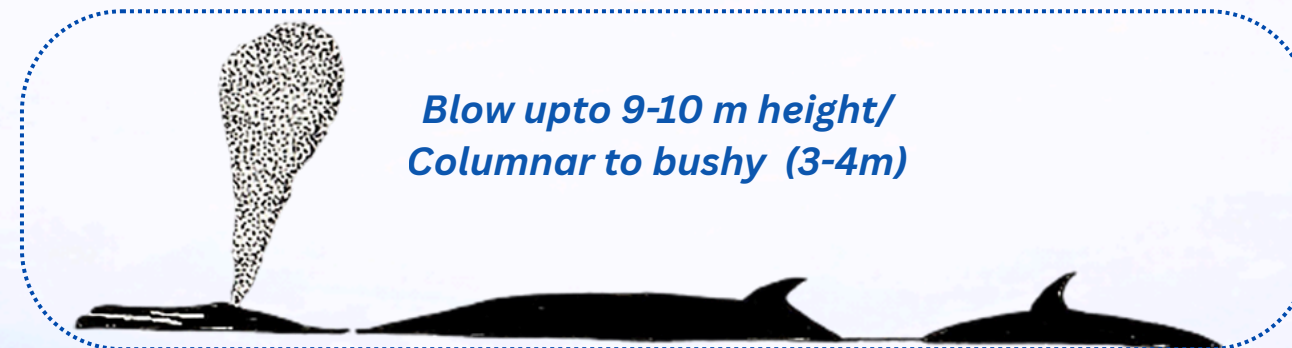
SUBORDER: MYSTICETI

FAMILY: BALAENOPTERIDAE

Bryde's Whale *Balaenoptera edeni*



Adult Length: ~15.5 m
Adult Weight: ~20,000 Kg



The body is uniform grey to bluish black on the dorsal side and creamy white on the ventral side, with a diffused boundary blending the dark and white regions. The flippers are dark grey.

Humpback Whale

Megaptera novaeangliae

Head: Knobs on top of head, single low median ridge lined with a series of tubercles top of chin - cluster of barnacles

Dorsal Fin: Low, broad base, stubby dorsal fin slits on the hump

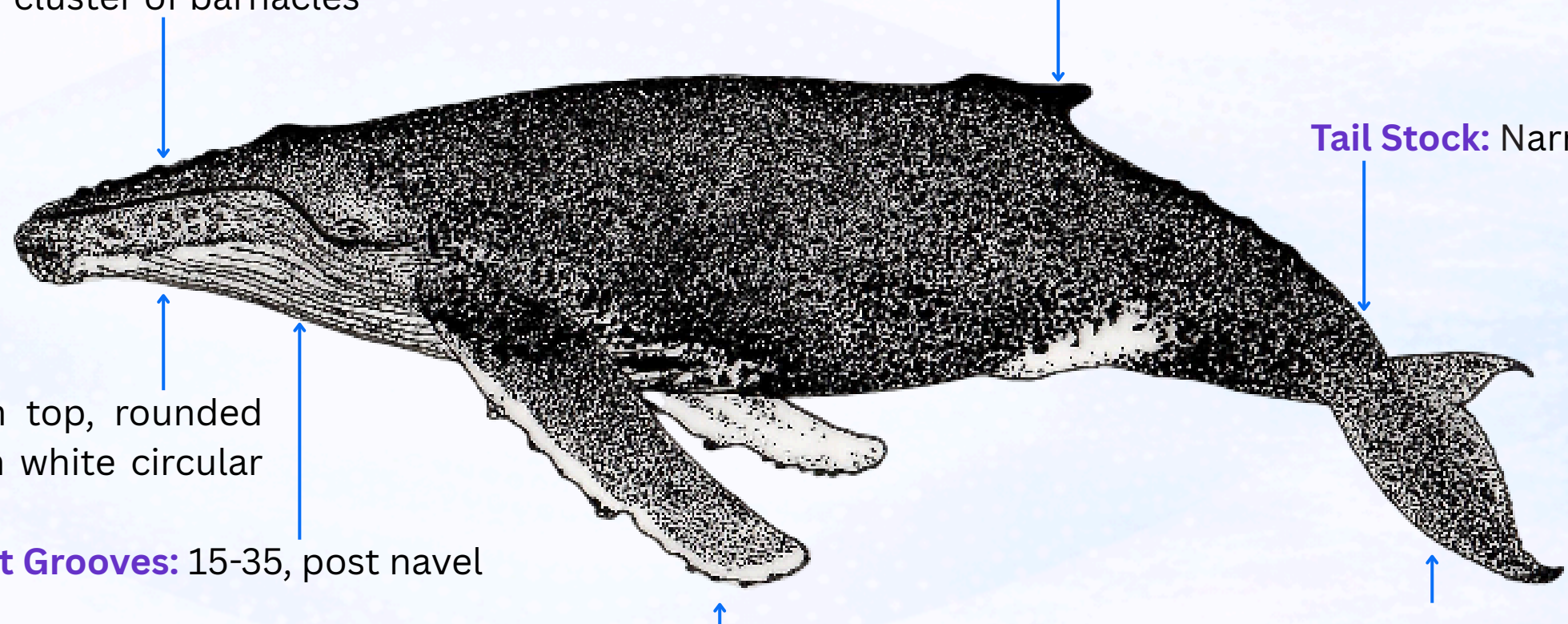
Tail Stock: Narrow

Lower jaw: Knobs on top, rounded protrusion at tip with white circular scar

Throat Grooves: 15-35, post navel

Long flippers: Upto 1/3rd of body length with knobs (tubercles) on leading edges, barnacles

Tail Fluke: Broad, serrated trailing edge, V-shaped notch



Adult Length: ~15 m

Adult Weight: ~40,000 Kg

Occasionally V shaped/ usually tall and columnar, busy at the top



The body ranges from black to dark grey on the dorsal side, with a white underside on the ventral side. The flippers are white on the ventral side, transitioning from white to black from the tip towards the body. The flukes are dark grey on the dorsal surface and white with a dark grey border on the ventral surface.

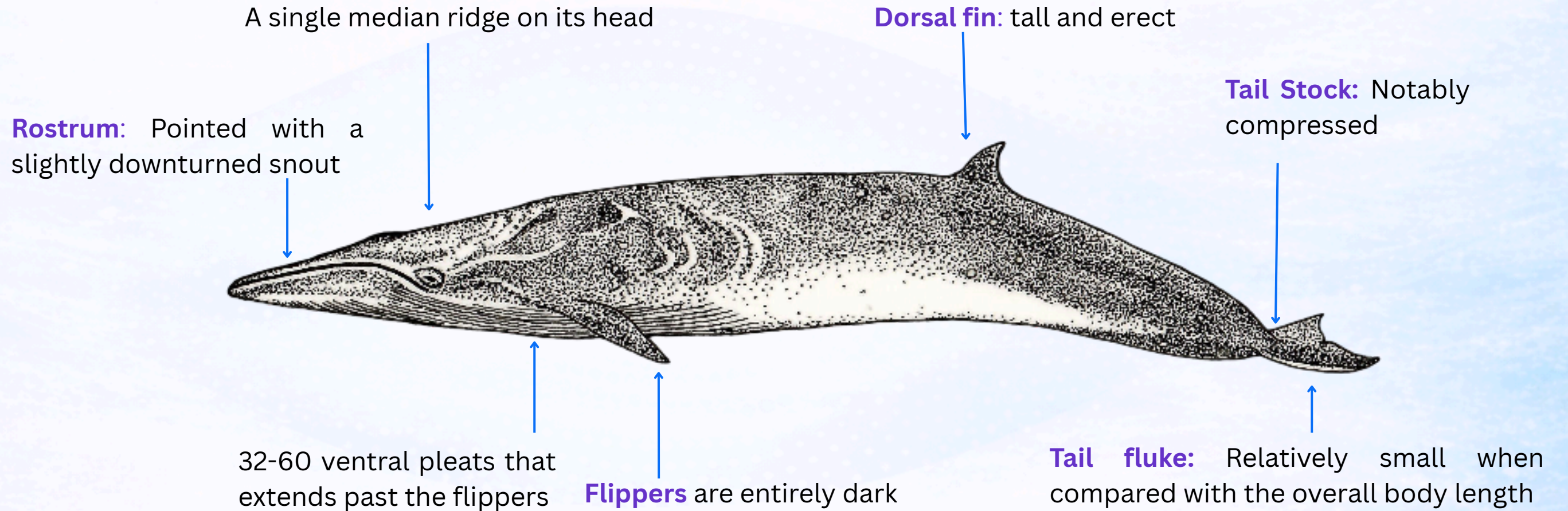
WHALE

SUBORDER: MYSTICETI

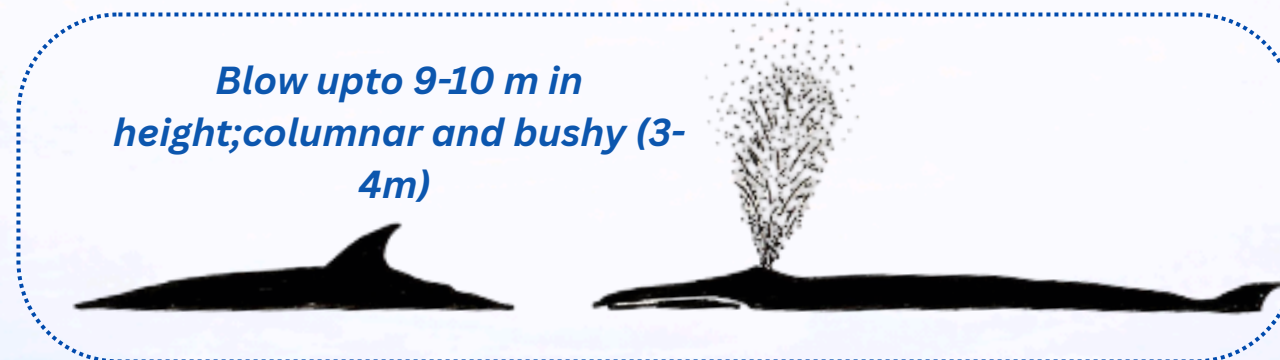
FAMILY: BALAENOPTERIDAE

Sei Whale

Balaenoptera borealis



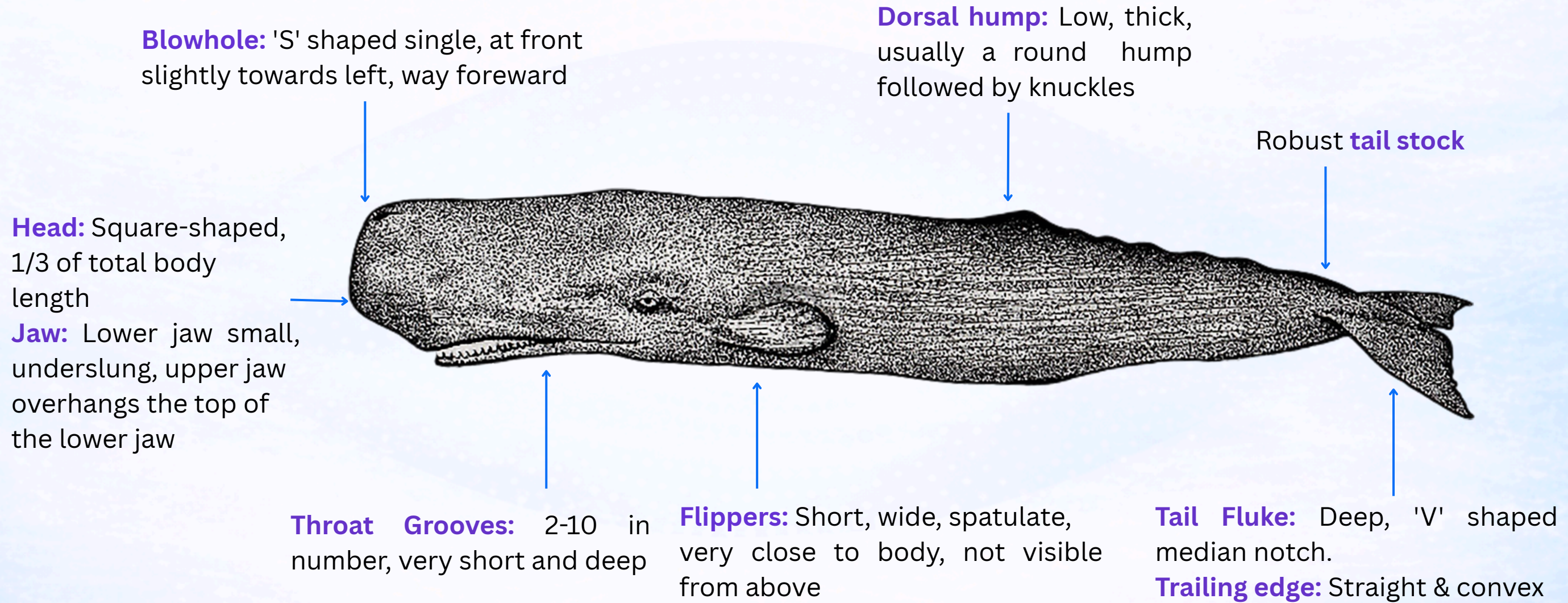
Adult Length: ~19.5 m
Adult Weight: ~45,000 Kg



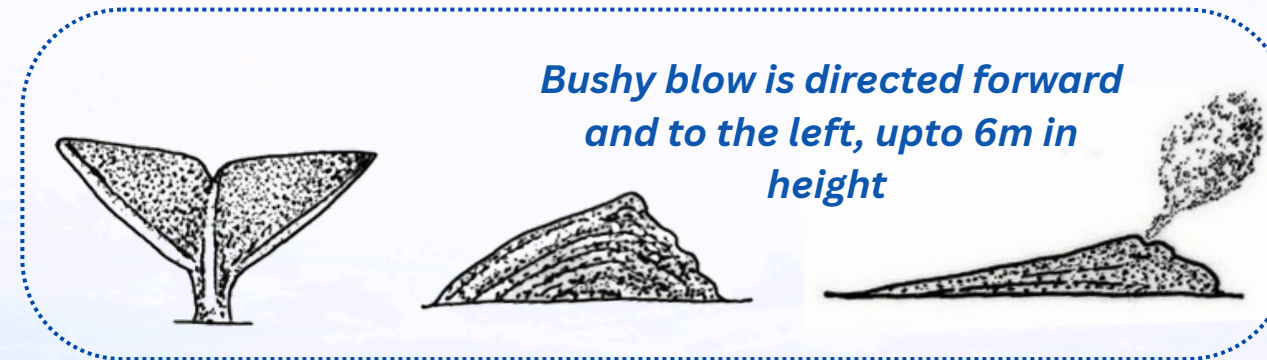
They often have numerous circular scars on their skin and a prominent, columnar blow. Dark grey to bluish-grey on the back and sides, with a pale or white underside.

Sperm Whale

Physeter macrocephalus



Adult Length: ~18 m
Adult Weight: ~57,000 Kg



The body is dark grey with a white patch on the belly, and the upper lips, lower jaw, and interior of the mouth are white. The flukes are dark.

WHALE

SUBORDER: ODONTOCETI

FAMILY: KOGIIDAE

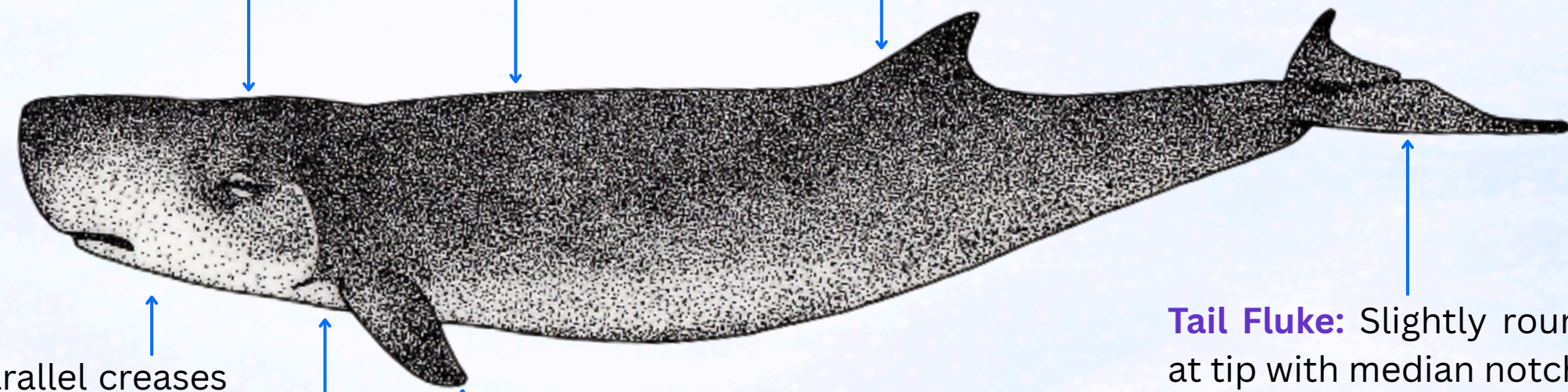
Dwarf Sperm Whale

Kogia sima

No distinct hump on back b/w
blowhole and dorsal fin

Blow hole is crescent
shaped that lies slightly
to left of centre

Dorsal Fin: Falcate, tall and
prominent



Throat Grooves: Two parallel creases
under throat

False gill: A pale crescent shaped
marking present behind the eye

Flippers: Small positioned near head, blunt at the tips

Tail Fluke: Slightly rounded
at tip with median notch

Adult Length: ~2.7 m
Adult Weight: ~270 Kg

*The body is dark grey or bluish-grey
on the back and sides, with a lighter
grey or whitish-pink underside.*

Pygmy Sperm Whale

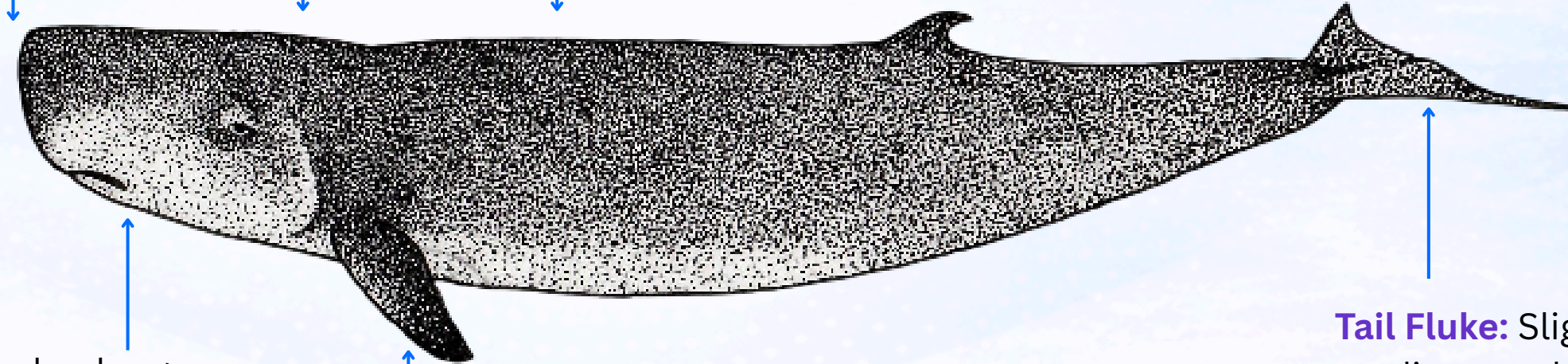
Kogia breviceps

Head: Shark like, square, blunt, longer snout, conical from above

Blow hole is crescent shaped lies slightly to left of centre

Hump on back b/w blowhole and dorsal fin.

Dorsal Fin: Rounded tip, small, falcate, behind midpoint of back



Lower jaw: Narrow underslung

Flippers: Small, broad, near to head, pressed tight against the body (above)

Tail Fluke: Slight median notch, broad

Adult Length: ~3.8 m
Adult Weight: ~544 kg

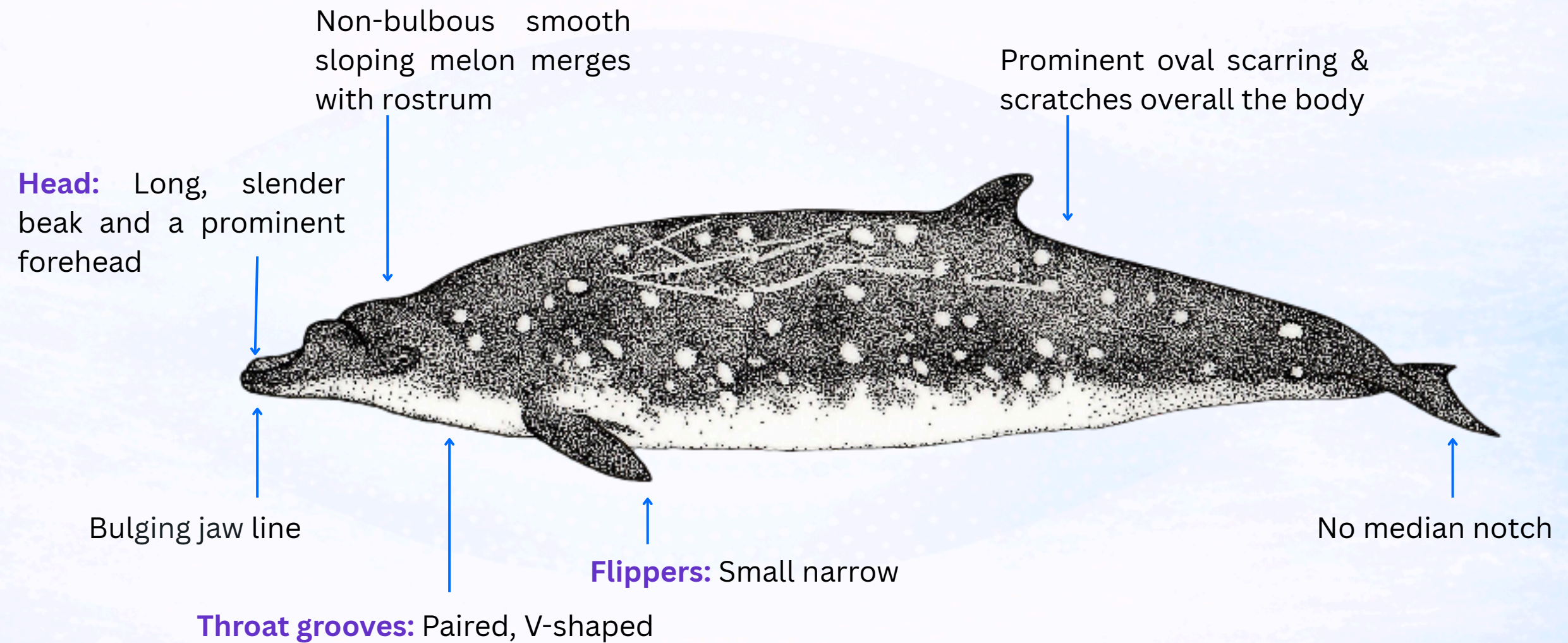
The body is dark bluish grey to brownish black on the dorsal side and light cream ivory on the ventral side. Circular scars are present around the mouth, and the sides of the head bear crescent-shaped, light-coloured marks.

WHALE

SUBORDER: ODONTOCETI

FAMILY: ZIPHIIDAE

Blainville's Beaked Whale *Mesoplodon densirostris*



Adult Length: ~6 m
Adult Weight: ~1,030 kg

Body color brownish grey. Males are very scarred and have a single pair of large teeth located about 30 cm from the tip of the jaw, while females lack erupted teeth, with a noticeable bulge present on the lower jaw.

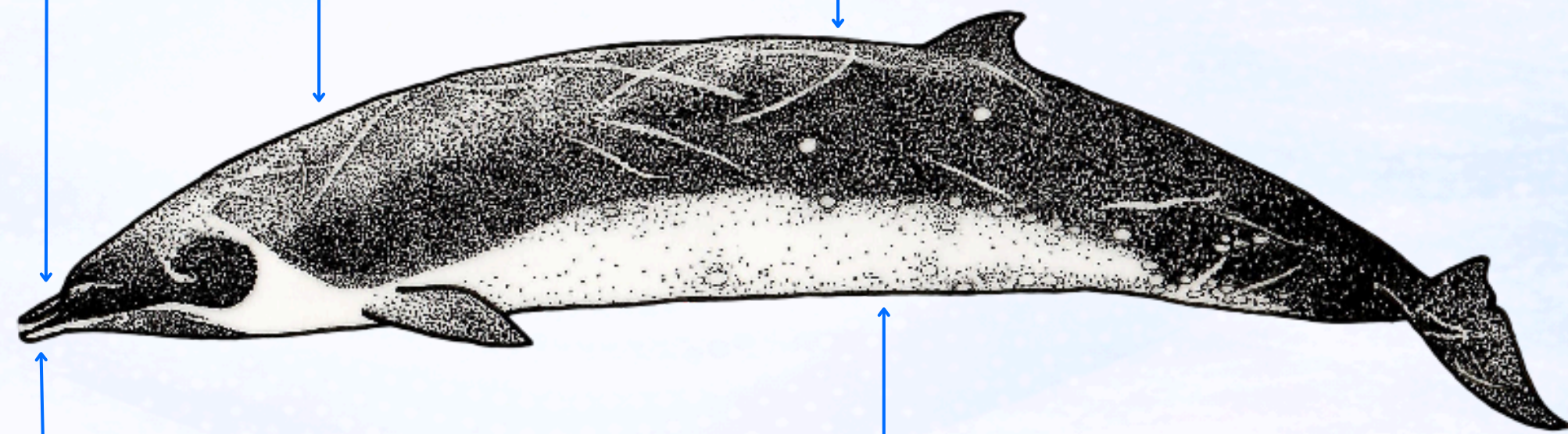
Ginkgo-toothed Beaked Whale

Mesoplodon ginkgodens

Head: Medium-sized with a long, slender beak, a prominent forehead

Body: Coloration ranging from dark gray to black

Little or no pale linear scarring



Beak: Moderately long beak with white tip

Many oval white scars on sides & belly

Adult Length: ~6.5 m
Adult Weight: ~700 Kg

Adult males have a single pair of large teeth, located about two-thirds towards the front of the lower jaw. Teeth are paired, tall, wide, and laterally compressed, resembling the leaves of the ginkgo tree.

Cuvier's Beaked Whale

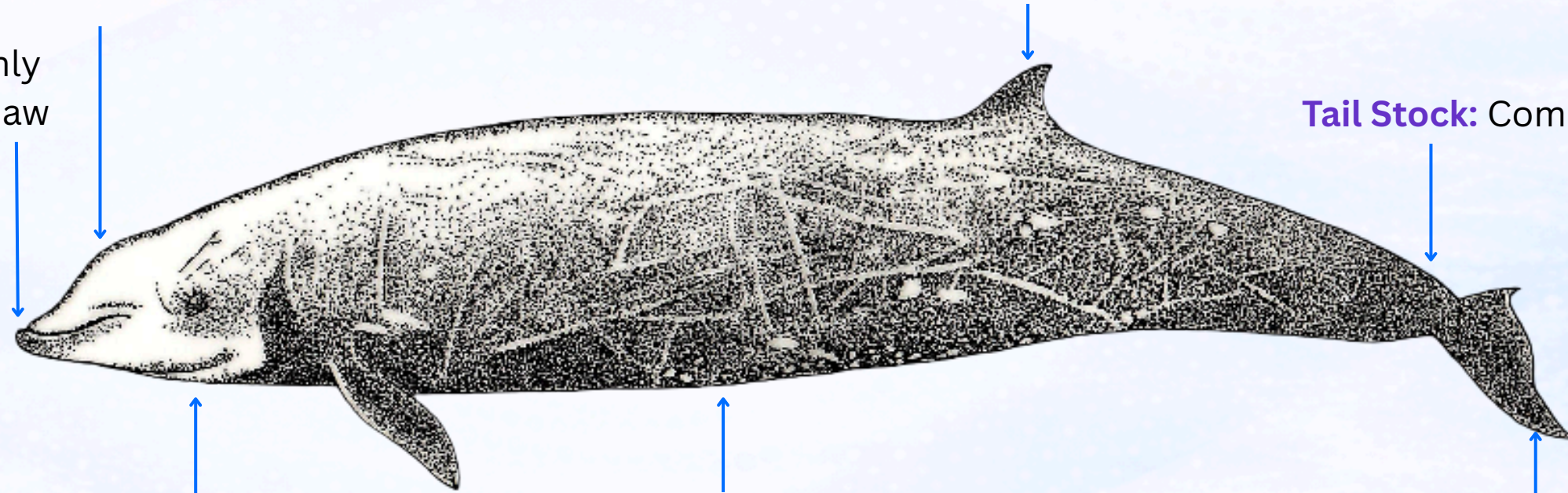
Ziphius cavirostris

Head: More bulbous melon, sloping forehead, short and poorly defined beak, top of head concave, lower jaw extends beyond upper jaw

Teeth: Erupt in male only at the tip of the lower jaw

Dorsal Fin: Small, falcate, 2/3rd way back from snout tip

Tail Stock: Compressed laterally



Throat Grooves: Two shallow, V shaped

Extensive linear scars and oval white scars

Tail Fluke: Very wide (compared to body length), slightly concave trailing edge, fluke notch rare

Flippers: Small, fit into flipper pockets on body

Adult Length: ~6 m

Adult Weight: ~3000 kg

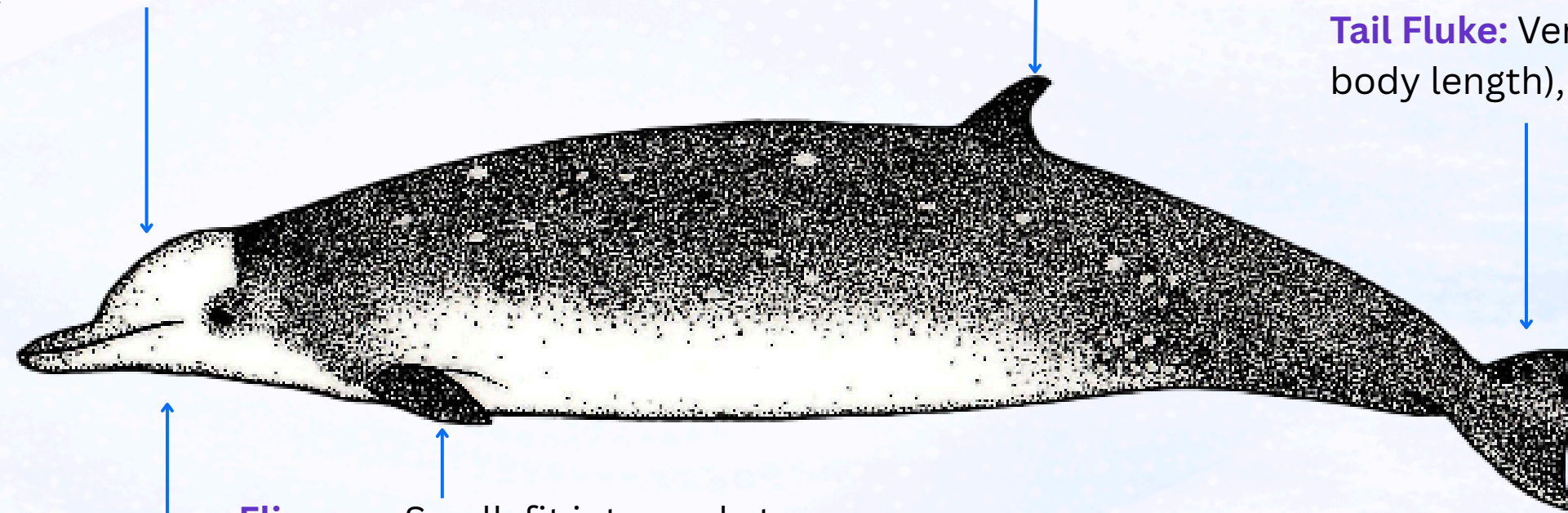
The body is dark brown, with the dorsal side becoming lighter than the sides and ventral surface with age, showing a reversal of normal countershading. The head and cape are paler, with dark coloration around the eye. Teeth erupt in male only, in females teeth do not erupt.

Longman's Beaked Whale *Indopacetus pacificus*

Head: Bulging head (melon), long dolphin like beak, distinct crease between melon and beak, straight mouthline

Dorsal Fin: Tall, erect, falcate, 2/3rd way back

Tail Fluke: Very wide (compared to body length), no median notch



Flippers: Small, fit into pockets, barely seen from above

Throat Grooves: Two shallow, V shaped

Adult Length: ~ 6.5 m

Adult Weight: ~7500 Kg

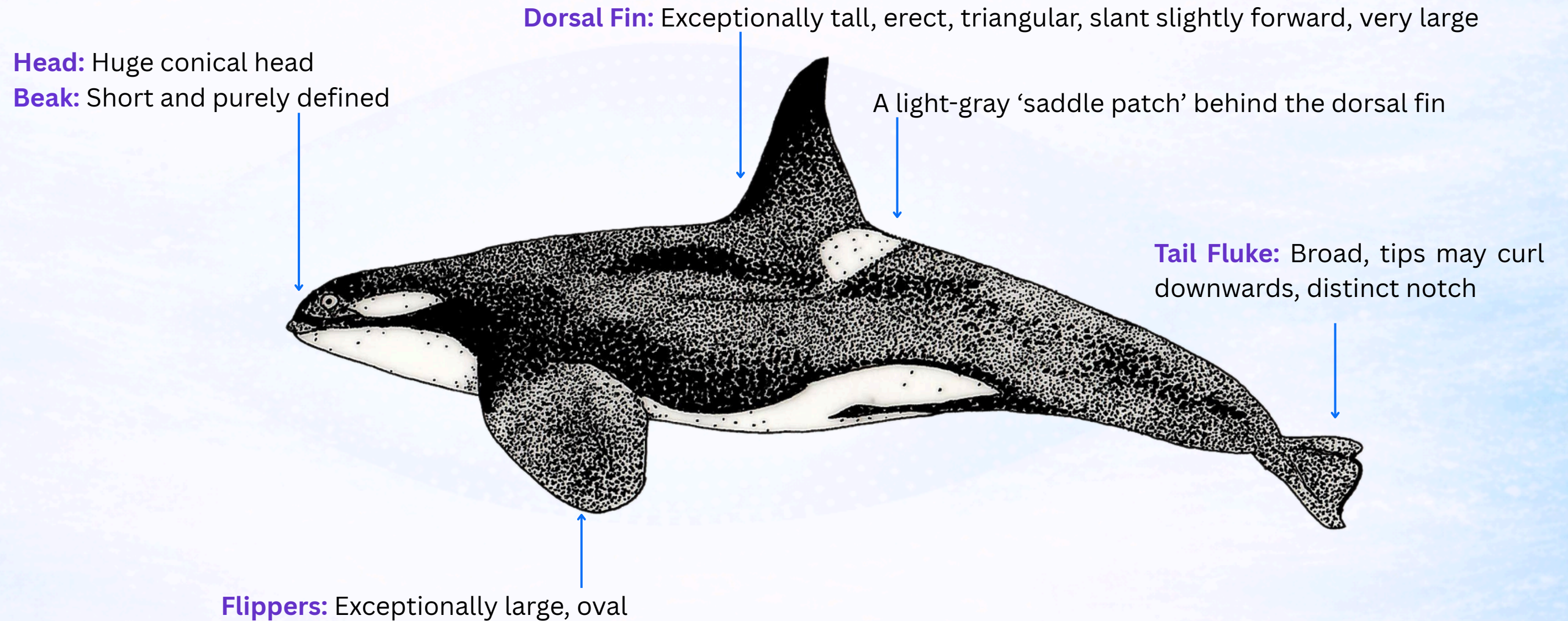
The body is bluish grey or brownish grey on the dorsal side and tailstock and white on the ventral side. A dark area around the melon forms an eye patch, with a paler ear patch present in the dark region behind the eye. The beak is white below and slightly darker above. The head is pale tan up to the blowhole. Pair of pear-shaped teeth at tip of lower jaw in male. Teeth do not erupt in female.

DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Killer Whale *Orcinus orca*



Adult Length: ~9.8 m
Adult Weight: ~10,000 kg

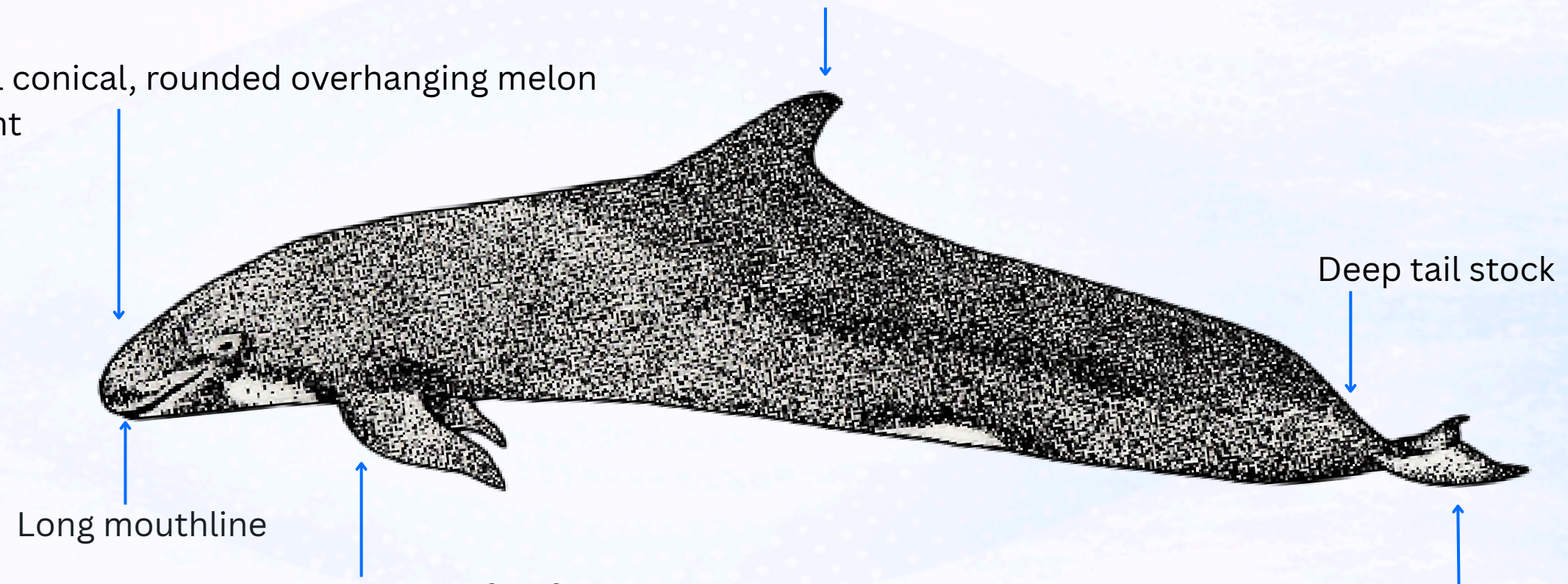
The dorsal side is jet black, with an elliptical white patch above each eye and a saddle patch located behind and below the dorsal fin. The ventral side, throat, and lower jaw are white, with a white lobe extending up the sides behind the dorsal fin. The flippers are entirely black, and the fluke is black on the dorsal surface and white on the ventral surface.

False Killer Whale

Pseudorca crassidens

Dorsal Fin: Narrow based, falcate, midway along back

Head: Small conical, rounded overhanging melon
Beak: Absent



Long mouthline

Flippers: Narrow, far forward on body, distinct bulge on leading edge - S shape (like an elbow)

Deep tail stock

Tail Fluke: Slender, small

Adult Length: ~6 m
Adult Weight: ~2000 Kg

The body is dark grey to black, and the melon is black. A slightly darker dorsal cape extends over the dorsal fin and runs toward the tailstock. A light grey to whitish, anchor-shaped patch is present on the chest, and in some individuals, narrow light grey to whitish midline stripes connect the chest patch to a wider urogenital patch.

Short-Finned Pilot Whale

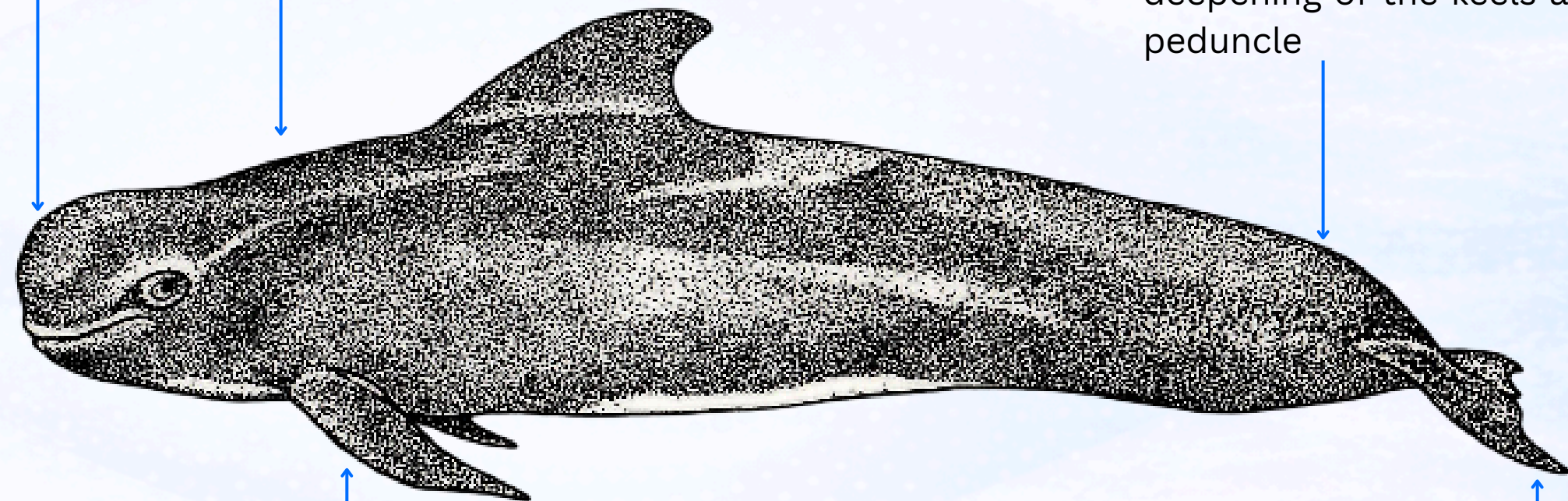
Globicephala macrorhynchus

Head: Round and exceptionally bulbous, melon protrude beyond or may overhang mouth
Beak: Indistinct (absent)

Crescent shaped blowhole (ends pointing forward)

Dorsal Fin: Extremely wide, broad based, falcate or hooked, 1/3rd way back

Tail Stock: Deepened, vertical deepening of the keels at the caudal peduncle



Flippers: Long, slender, sickle shaped, pointed tip, gently curved leading edge, 14-19% body length

Tail Fluke: Large, well-developed, pointed tips, median notch

Adult Length: ~7.3 m
Adult Weight: ~3600 Kg

The body is dark grey to brown, with a pale grey or whitish. A pale grey or whitish saddle patch is also present. The ventral side features a light grey to whitish, anchor-shaped patch on the chest, with narrow midline stripes connecting the chest patch to a wider urogenital patch.

Pygmy Killer Whale

Feresa attenuata

Body: Dark-grey to black in color, featuring a distinct narrow cape that extends only slightly below the dorsal fin

Head: Rounded without a beak

Dorsal fin: Tall falcate rising at an angle from the back

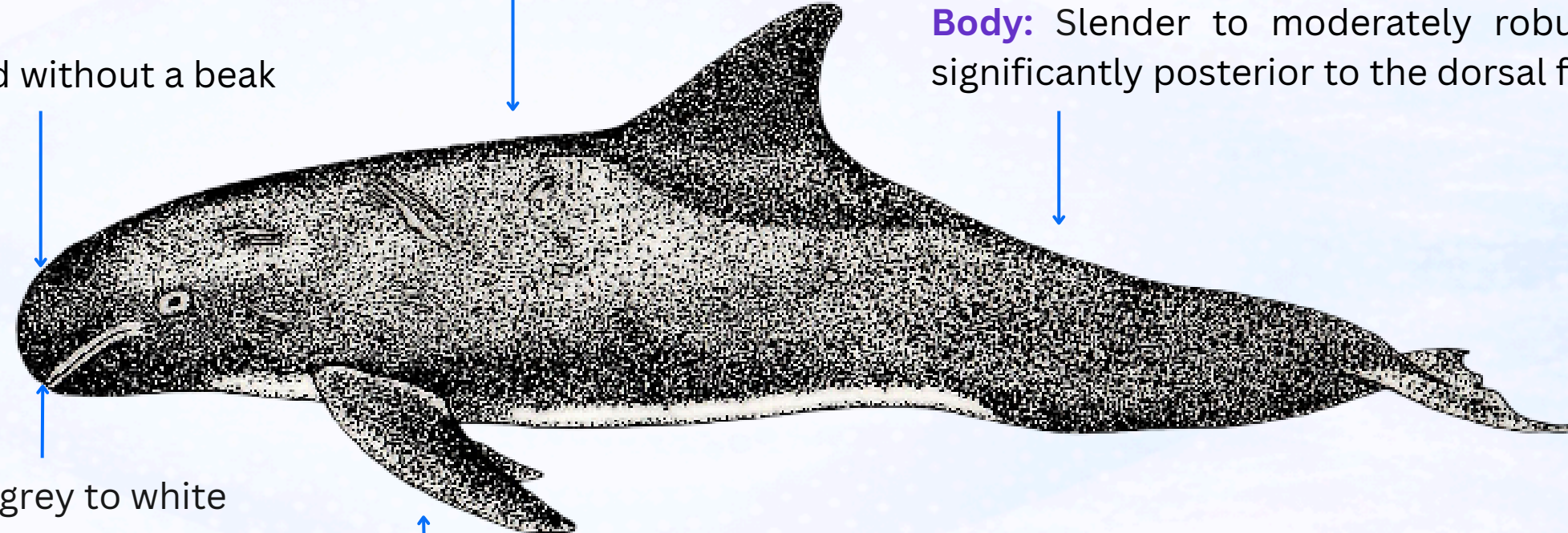
Body: Slender to moderately robust, narrowing significantly posterior to the dorsal fin

Lips : Pale grey to white

Flippers: Moderately Long with slightly rounded tip

Adult Length: ~2.6 m
Adult Weight: ~225 kg

A white to light grey ventral band widens around the genital area, and the lips and tip of the snout are often white.



DOLPHIN

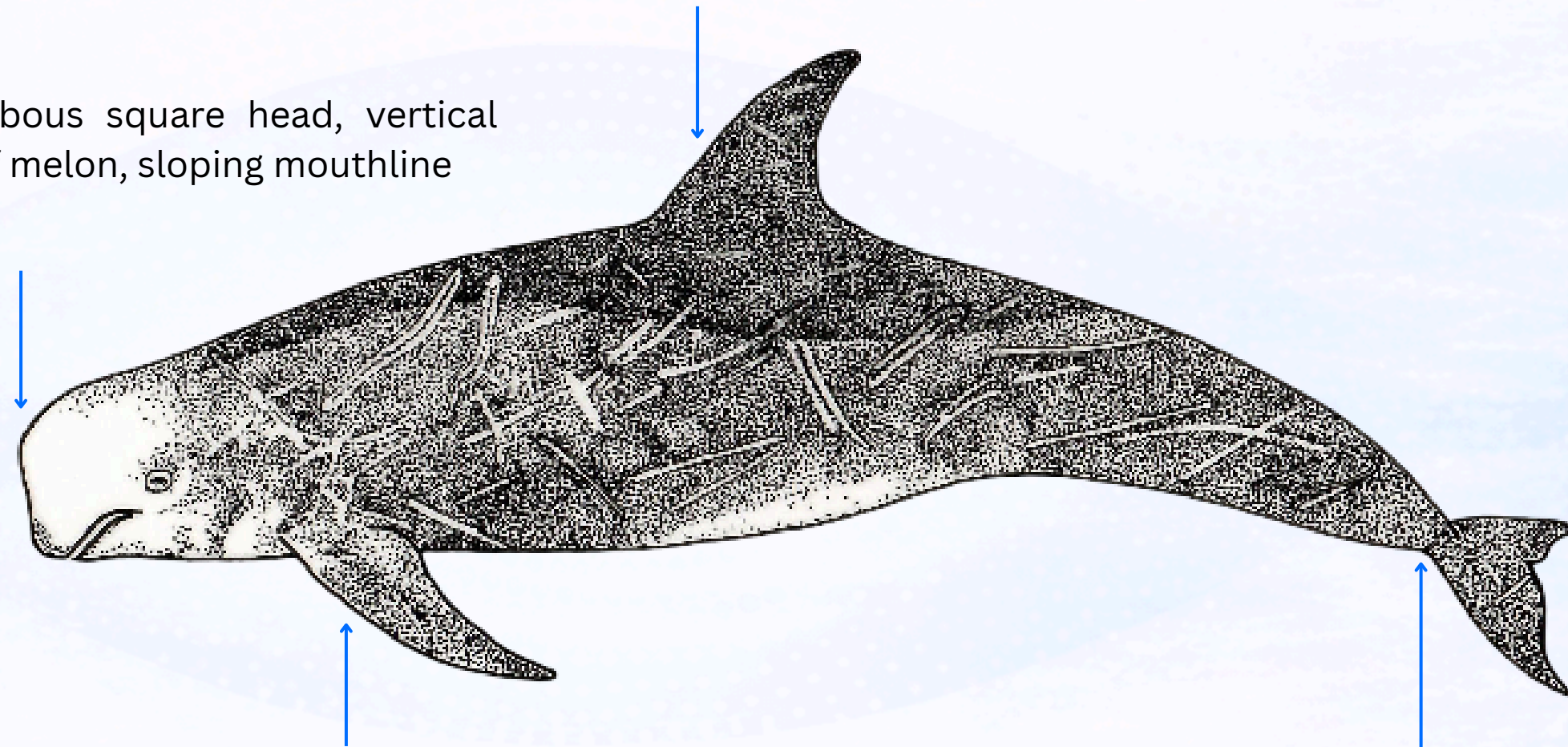
SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Risso's dolphin *Grampus griseus*

Dorsal Fin: Very tall, narrow base, pointed tip

Head: Blunt, bulbous square head, vertical crease on front of melon, sloping mouthline



Flippers: Long, pointed, sickle shaped and slender

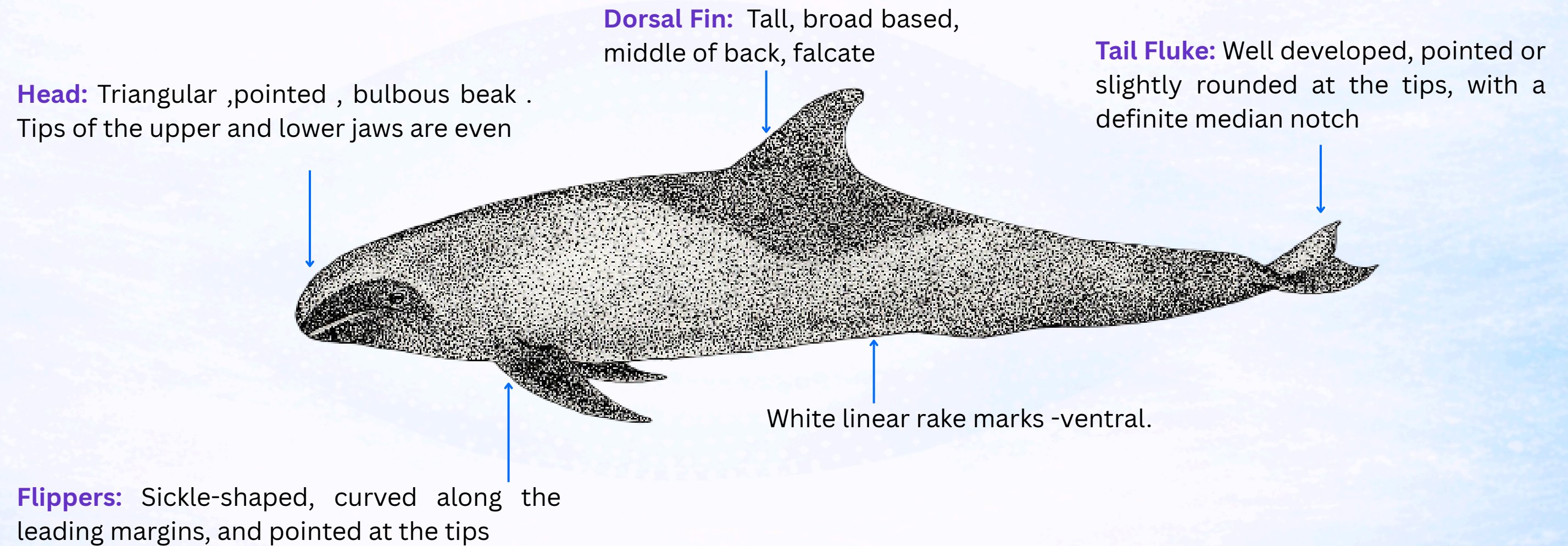
Tail Stock :Slender tail stock in front of the fluke

Adult Length: ~3.7 m
Adult Weight: ~500 kg

Adults' body color ranges from dark gray to nearly white, but typically covered with white scratches, spots and blotches. The chest has a whitish anchor shaped patch and another white patch occurs around the urogenital area.

Melon Headed Whale

Peponocephala electra



Adult Length: ~2.7 m
Adult Weight: ~210 kg

Dark gray over the entire body. Slightly darker saddle on the back extends down (much deeper than pygmy killer whale) the sides from just forward of the dorsal fin. A thin white stripe runs along the upper and lower lips. White anchor pattern appears on the upper chest.

DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Indian Ocean Humpback Dolphin

Sousa plumbea

Head: Round melon, steep forehead no deep crease, but distinct junction b/w beak and melon

Dorsal Fin: Small, highly falcate, midway back, sitting on a well defined wide based hump, sometimes with white/ pink pigmentation on dorsal fin

Tail Stock: Deepened, well-developed dorsal and ventral ridges

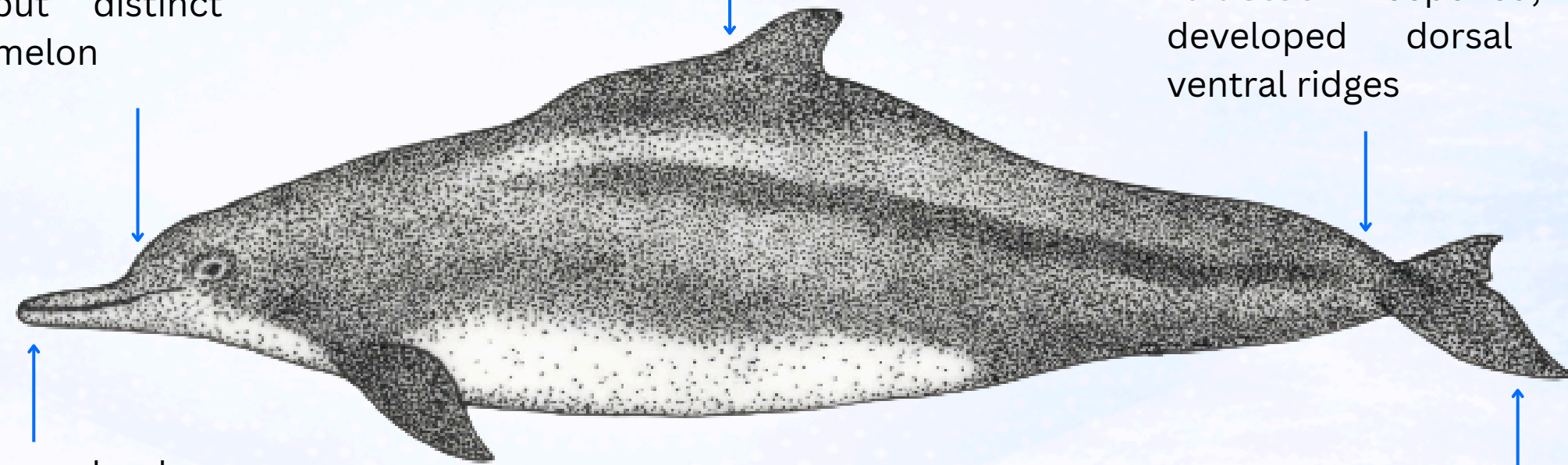
Beak: Long, slender

Flippers: Broad, rounded tips

Tail Fluke: Broad, median notch, round tips

Adult Length: ~2.8 m
Adult Weight: ~280 kg

Dark grey to brownish grey. Loss of pigmentation or scarring on head, beak, dorsal hump and dorsal fin. Slightly paler belly.



DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Indo-Pacific Humpback Dolphin *Sousa chinensis*

Head: Round melon, steep forehead, no deep crease, but distinct junction b/w beak and melon.

Dorsal Fin: Low slightly falcate fin, wide based, more triangular, hump is not well defined

Crescent shaped blowhole

Tail Fluke: Broad, median notch, round tips

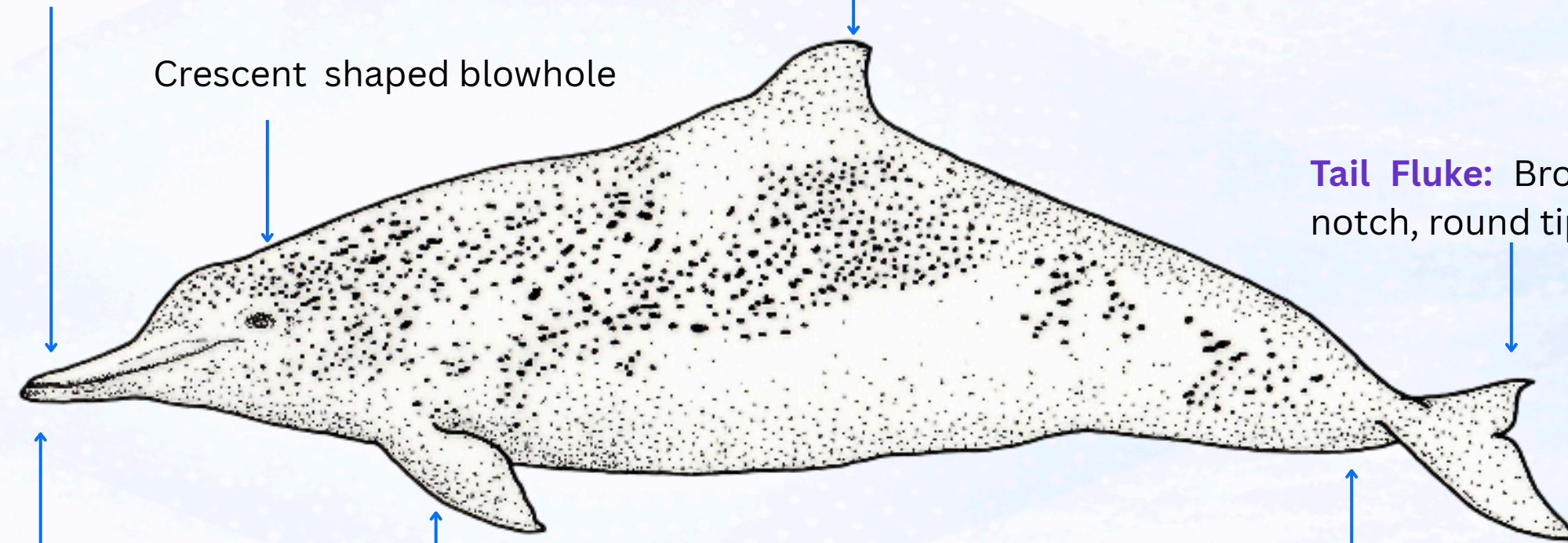
Beak: Long, well defined

Flippers: Broad, rounded tips

Tail Stock: Dorsal and ventral ridges - absent

Adult Length: ~2.6 m
Adult Weight : ~240 kg

The body is white or pinkish white with a pinkish tinge, though not due to pigmentation. Dark spotting is present dorsally and spreads to the sides, and pink patches are visible on the dorsal fins.

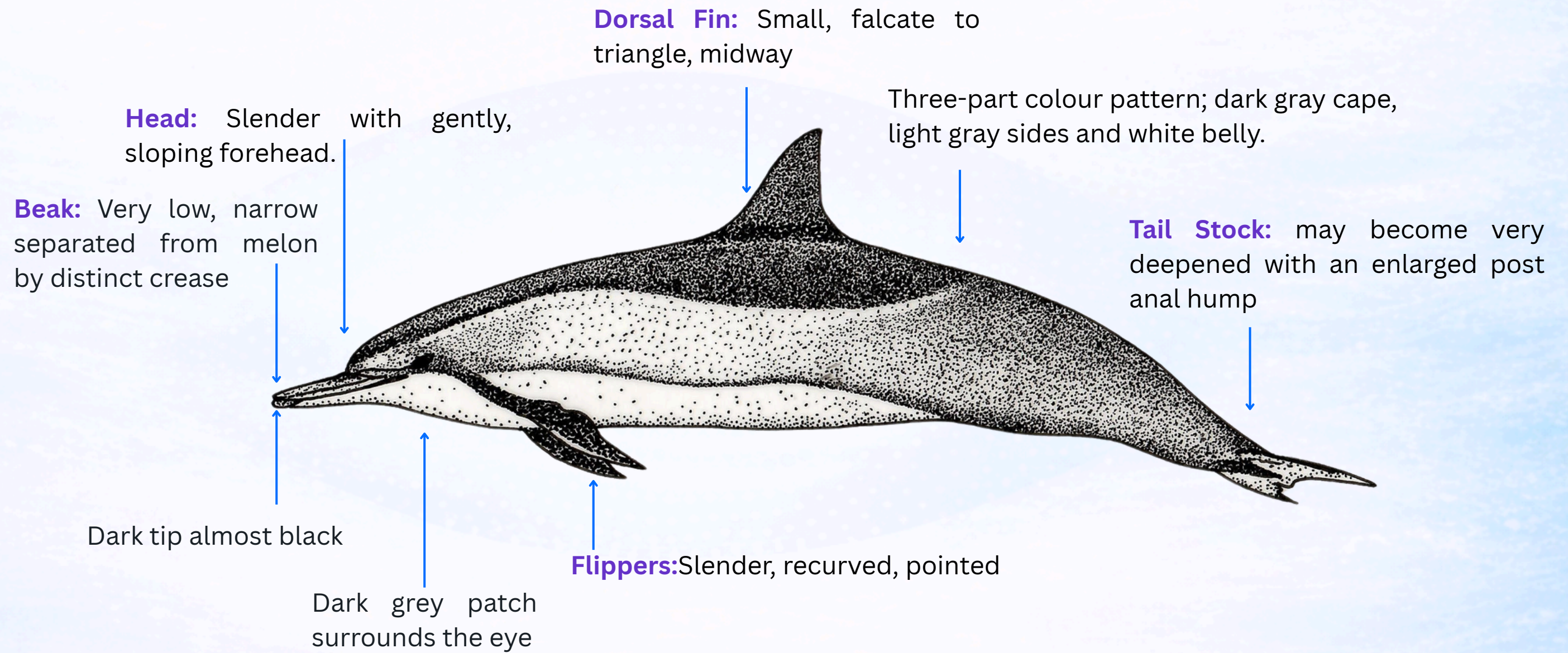


DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Spinner Dolphin *Stenella longirostris*



Adult Length: ~2.35m

Adult Weight: ~82kg

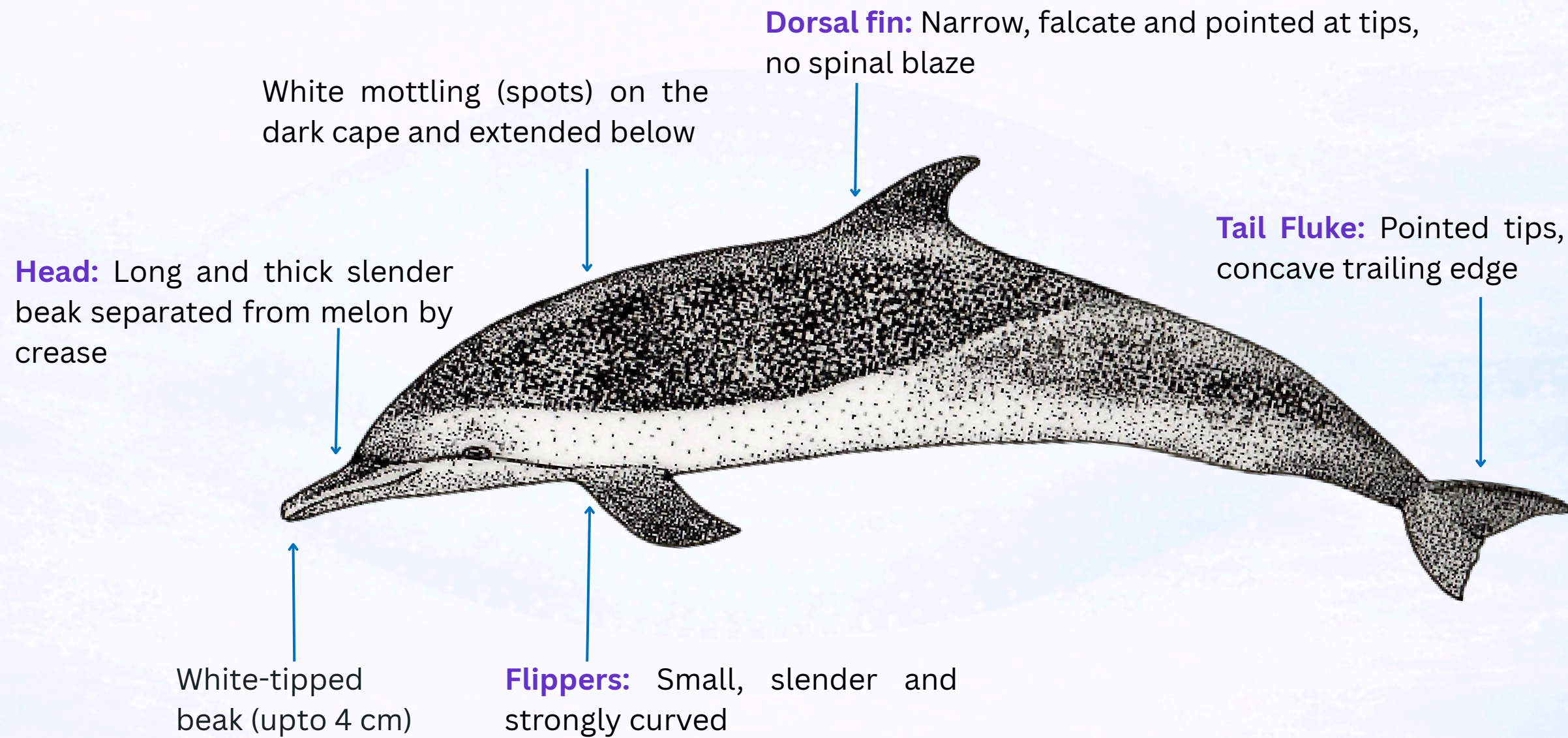
The body displays a three-toned pattern. The lips have black tip, and a dark grey patch surrounds the eye.

DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Pantropical Spotted Dolphin *Stenella attenuata*



Adult Length: ~2.6m
Adult Weight: ~120kg

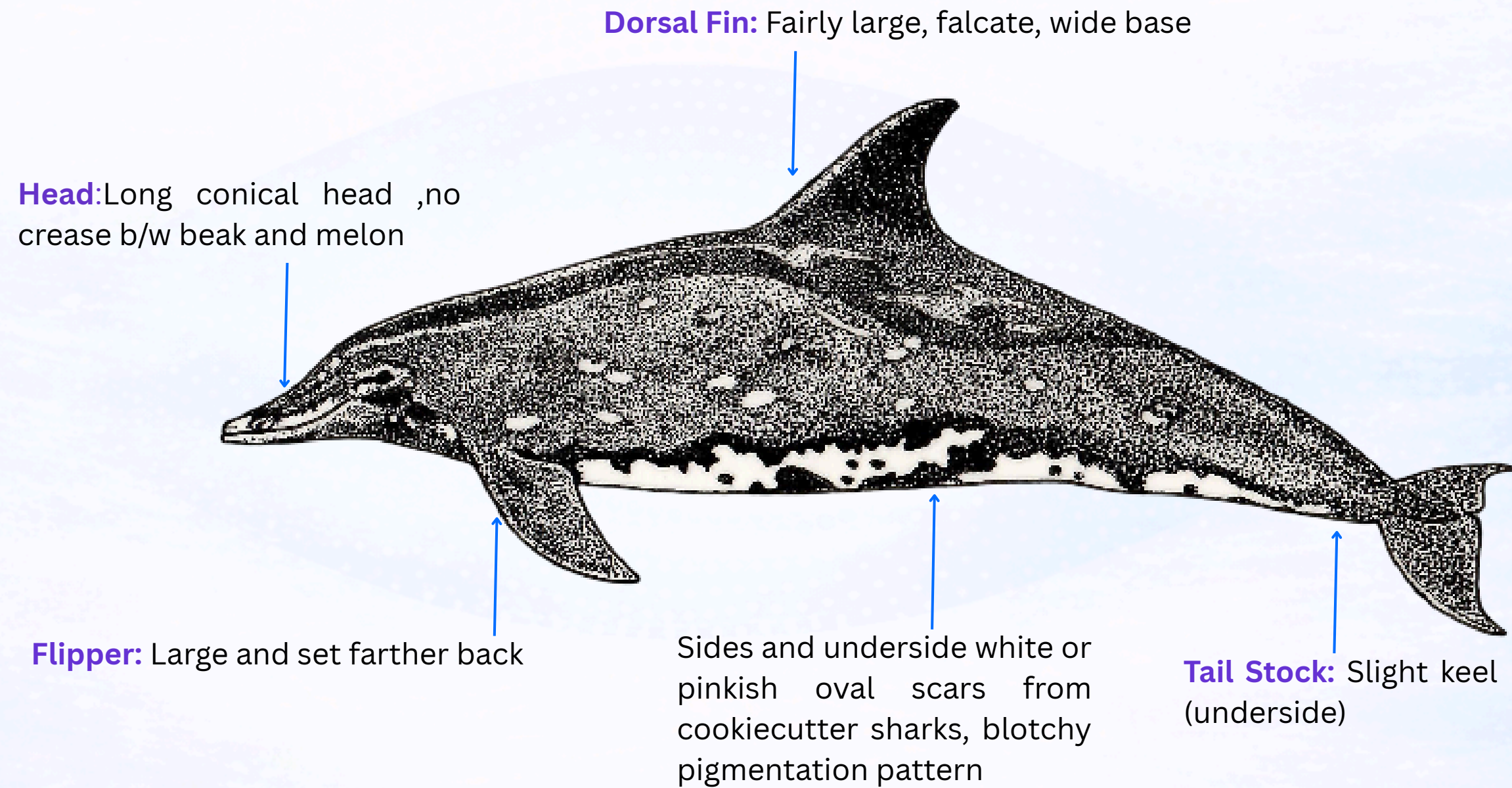
The body shows a two-toned underlying pattern. It has a dark dorsal cape that rises high above the flipper and sweeps very low on the side below the dorsal fin. The sides and belly are light grey, the lips are white-tipped, and there is a dark grey eye patch.

DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Rough Toothed Dolphin *Steno bredanensis*



Adult Length: ~2.7 m
Adult Weight: ~155 kg

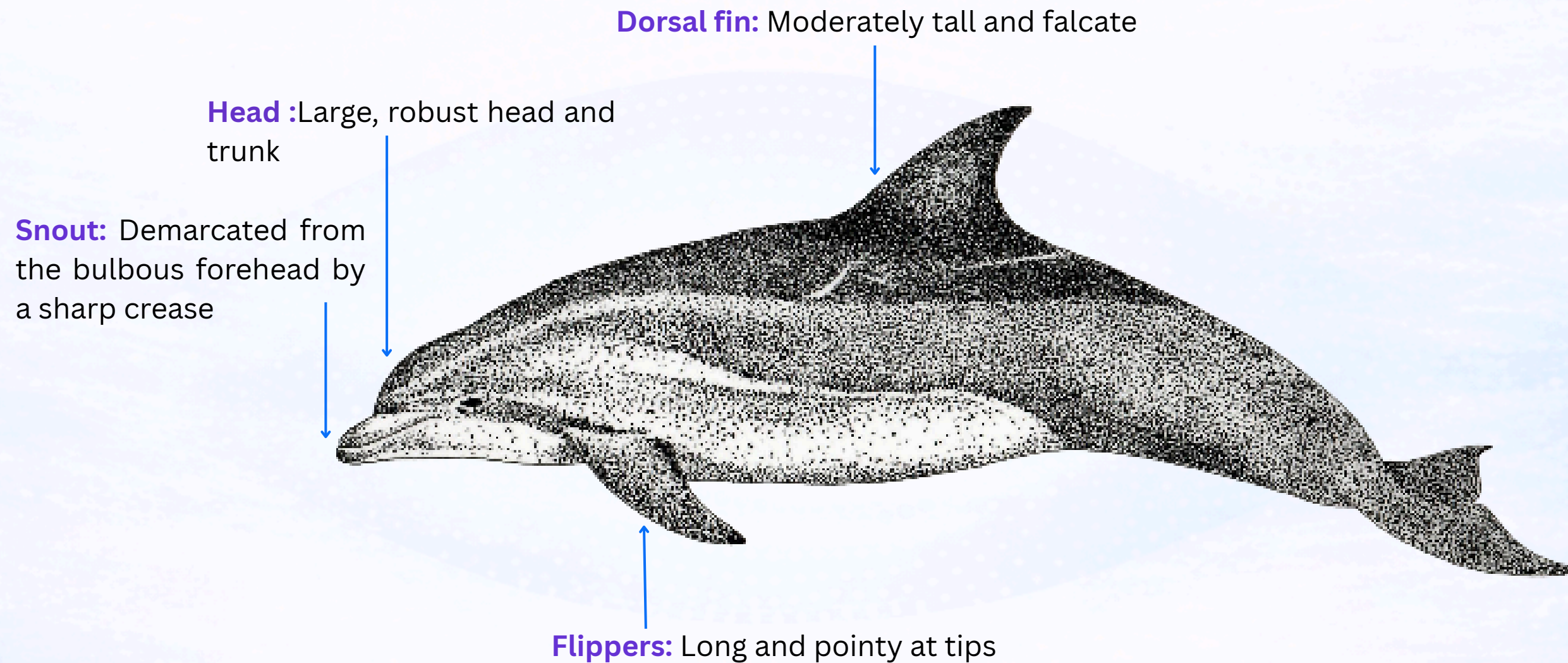
The body is dark grey with a narrow dorsal cape, while the belly, lips, and lower jaw are white.

DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Common Bottlenose Dolphin *Tursiops truncatus*



Adult Length: ~13 m
Adult Weight: ~635 kg

Adult dolphins may also have a white mark on the tip of the lower jaw. Their coloration varies but is usually dark or slate grey on the back, grading to white or pink on the belly.

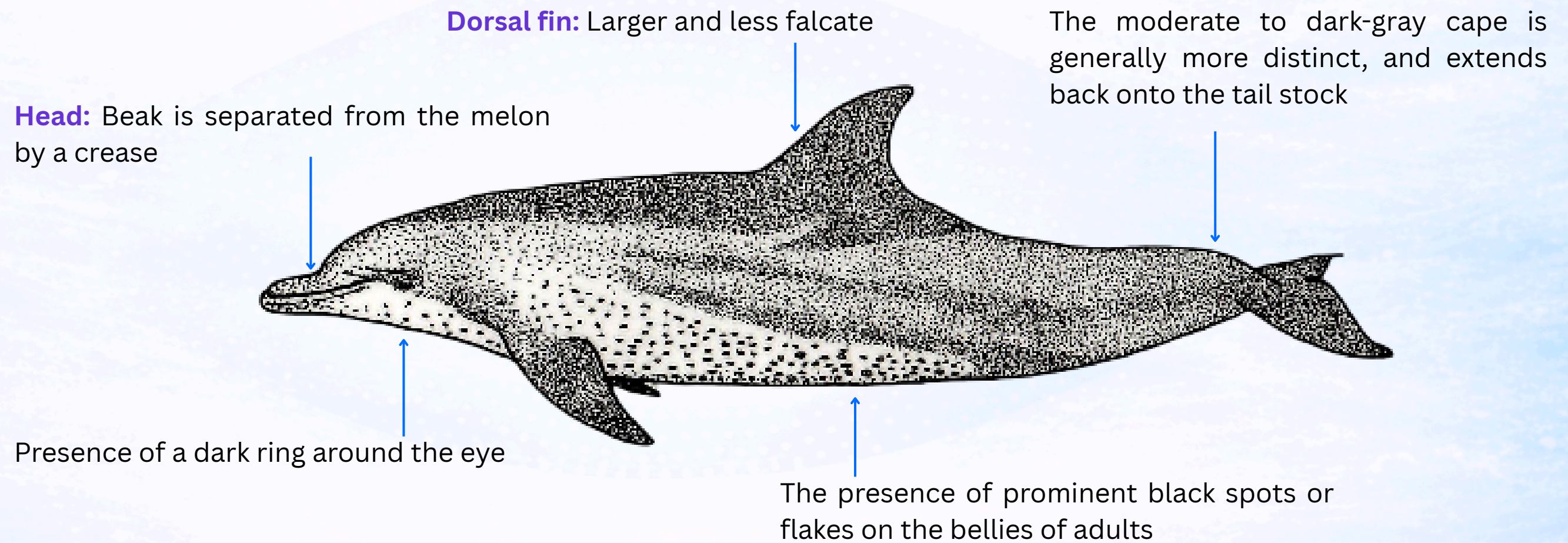
DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Indo-Pacific Bottlenose Dolphin

Tursiops aduncus



Adult Length: ~2.6 m
Adult Weight: ~230kg

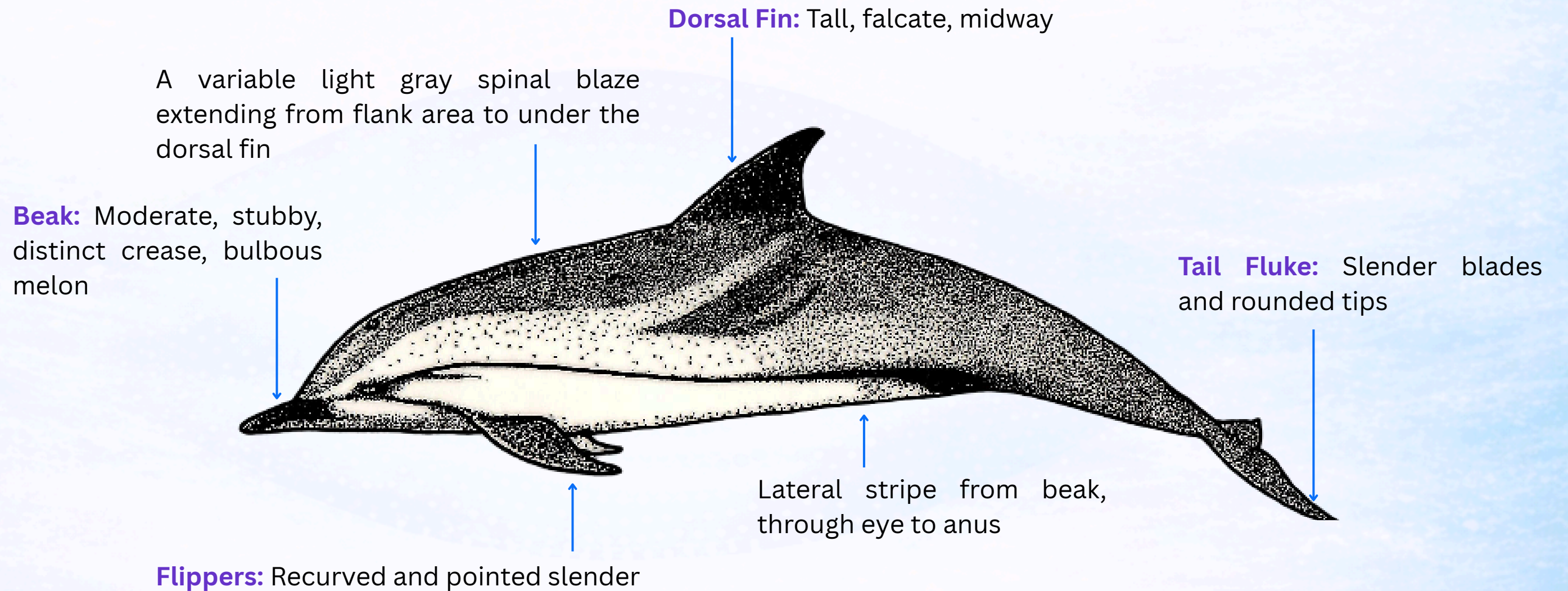
The belly is white to pale gray and grades smoothly into darker gray on the lateral and dorsal surfaces.

DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Striped Dolphin *Stenella coeruleoalba*



Adult Length: ~2.56m

Adult Weight: ~156 kg

The thorax is light grey, with a white spinal blaze extending from the thoracic region to the base of the dorsal fin. Dark grey to black lateral stripes run from the beak through the eye to the anus. The belly, throat, and lower jaw are white or pinkish. The flippers are black, and the flukes are light grey to black on both sides.

DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

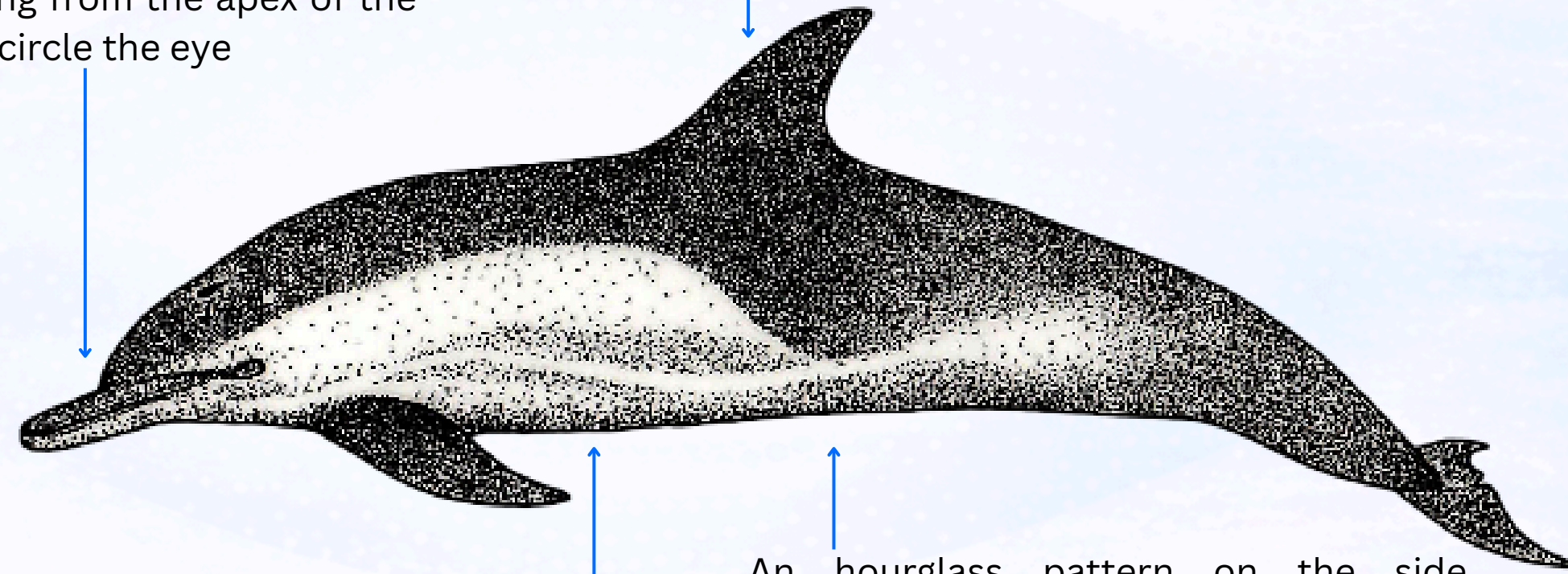
Short Beaked Common Dolphin

Delphinus delphis



Dorsal fin: Tall, slightly falcate

Head: Lips are dark, and there is a stripe running from the apex of the melon to encircle the eye



A dark brownish gray back, white belly and tan to ochre anterior flank patch

An hourglass pattern on the side produced by flank patch dipping below the dorsal fin and combining with streaks of light gray on the tail stock

Adult Length: ~ 2.7 m
Adult Weight: ~150 kg

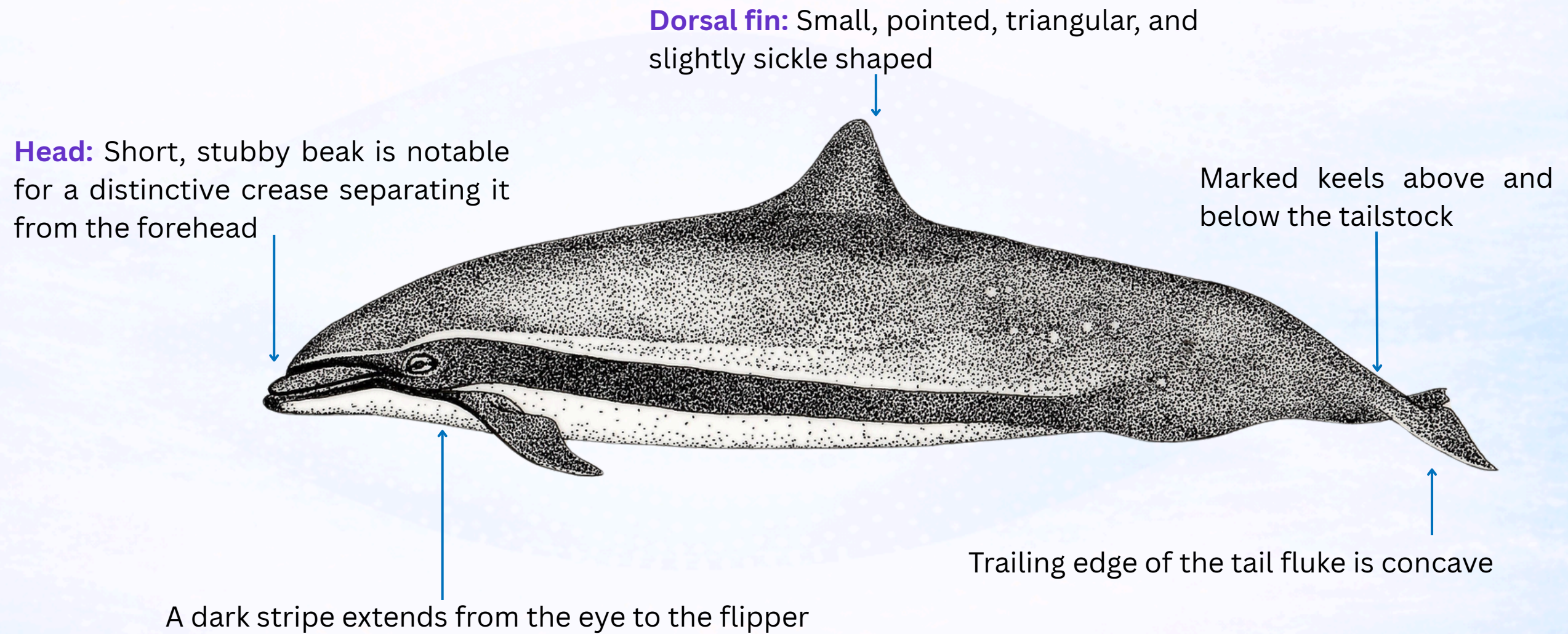
The body is dark brown to black above, including the appendages, and white below. The front flanks have yellow patches, while the rear flanks and tail stock are light grey.

DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

Fraser's Dolphin *Lagenodelphis hosei*



Adult Length: ~2.6 m
Adult Weight: ~136 kg

The bluish-grey or brownish-grey body has a white belly and longitudinal stripes, with a cream band above the eye and a parallel black stripe below it. The lips and often the lower jaw may be white or flecked with white.

DOLPHIN

SUBORDER: ODONTOCETI

FAMILY: DELPHINIDAE

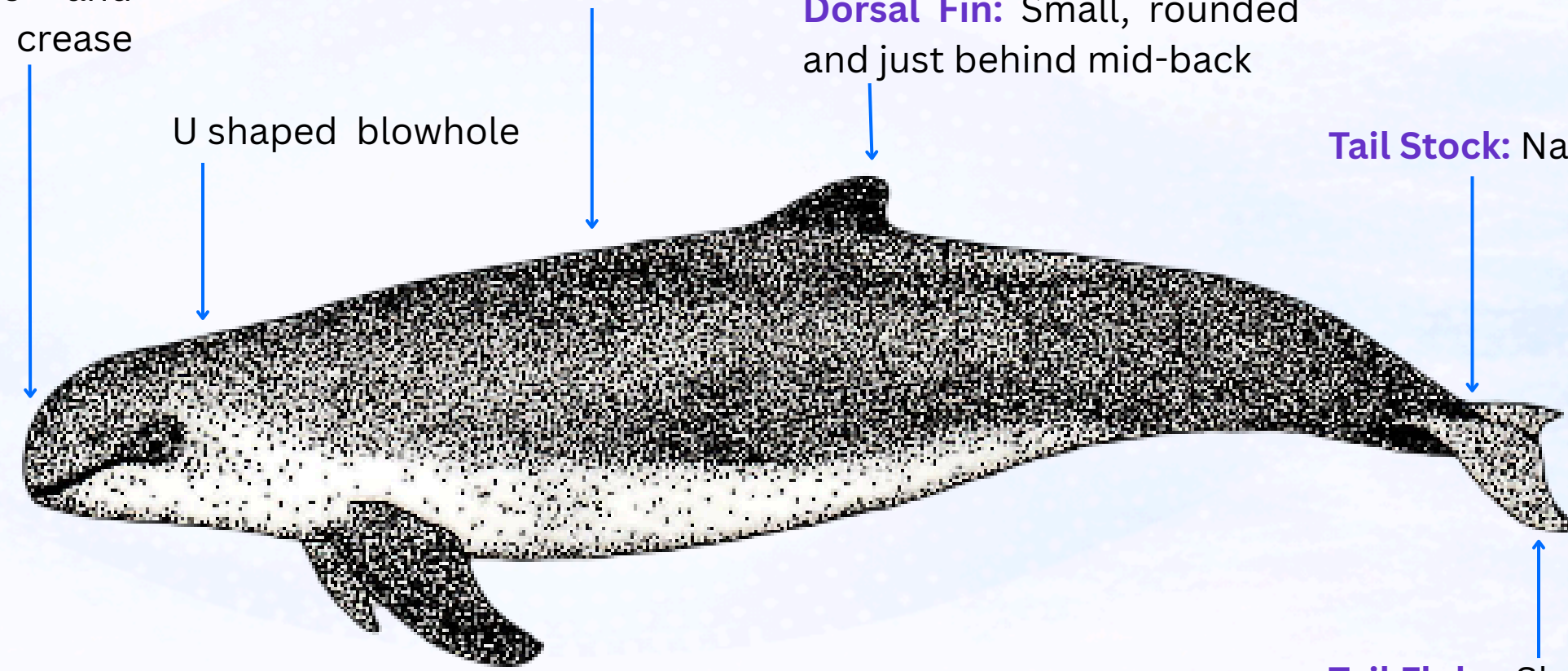
Irrawaddy dolphin *Orcaella brevirostris*

Head: Blunt, bulbous head, straight mouthline and indistinct neck crease
Beak: Absent

Dorsal groove running along the back from the neck region to just before the dorsal fin

Dorsal Fin: Small, rounded and just behind mid-back

Tail Stock: Narrow



U shaped blowhole

Flippers: Very broad, convex leading edge, round tip, paddle shaped

Tail Fluke: Shallow concave trailing edge

Adult Length: ~2.8 m
Adult Weight: ~130 Kg

The body is grey to blue-grey, with a somewhat lighter belly. The dorsal region and sides are dark to slate grey, while the ventral region is pale and light, extending on to the underside of the flippers.

PORPOISE

SUBORDER: ODONTOCETI

FAMILY: PHOCOENIDAE

Indo-Pacific Finless Porpoise *Neophocaena phocaenoides*

Head: Rounded head rises steeply from the snout tip, with slightly bulbous melon

Behind the blowhole is a slight depression, like a neck crease

Prominently rounded dorsal ridge stretches from the mid-back region to the tail stock

Beak: Beak is absent; neck is very flexible

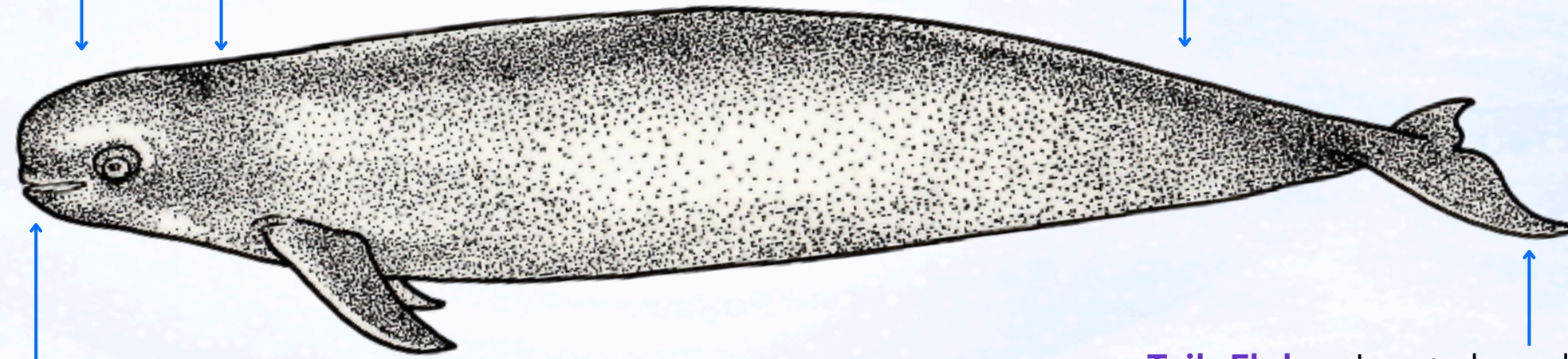
Flippers: Large, broad, and pointed at the tips

Tail Fluke: Long, broad, thin flukes, rounded at the tips, definite median notch, concave trailing edge

Adult Length: ~1.71 m

Adult Weight: ~60 kg

The body is dark grey to completely black, with a blue tinge on the back and sides. The ventral regions are off-white, and the lips and chin are lighter in colour. Instead of a dorsal fin, there is a wide, rhomboid-shaped tubercled patch with a poorly developed central groove and 9–25 loose longitudinal rows of tubercles at its widest point. Dorsal fin is absent.



DUGONG

ORDER: SIRENIA

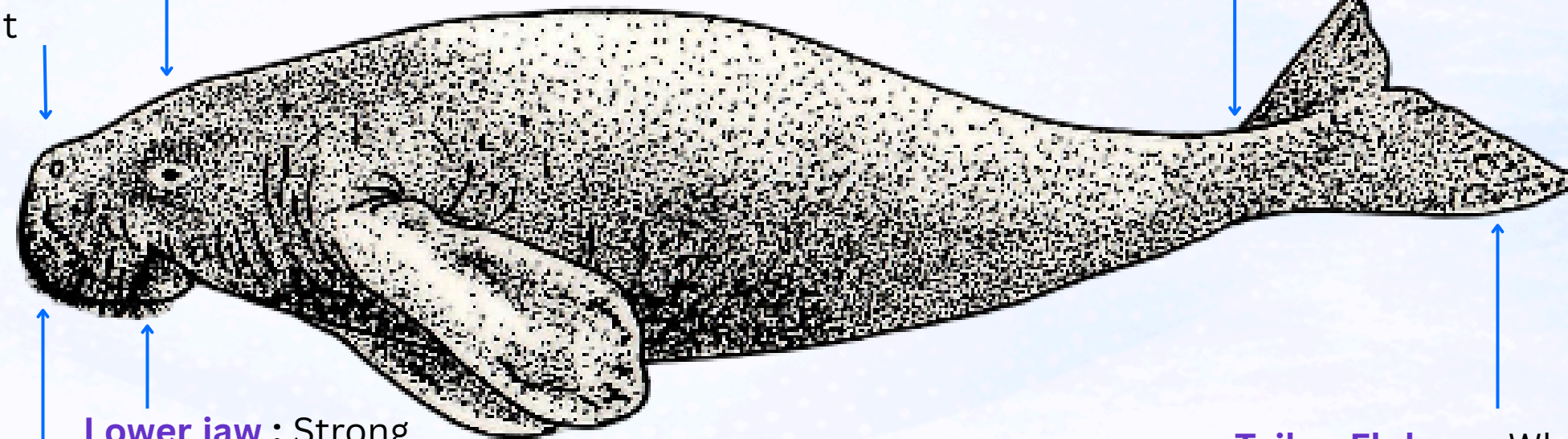
FAMILY: DUGONGIDAE

Sea Cow *Dugong dugon*

Head: Round, blunt, ventrally deflected, at the end of the nose is a round, flat area called rostral disk ; snout is broad and muscular

Tail Stock: Strong and muscular, compressed into a peduncle

Double nostrils, at tip of the snout



Lower jaw : Strong and rounded

Upper Jaw (rostrum): Downturned and overhangs the lower jaw, upper lip is large, muscular, and split.

Flippers: Short, rounded, and paddle-shaped like small oars

Tail Fluke: Whale-like, horizontal flukes used for propulsion, triangular and notched at the center

Adult Length: ~1.71 m

Adult Weight: ~60 kg

The dorsal side is slate gray to brownish, while the ventral side is lighter in colour



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SENTINELS OF THE SEA

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