



From the left: • Reticulate whipray at Round Bommie, Rainbow Beach, QLD. • Blotched fantail ray at Manta Bommie, Brisbane, • Part of a school of 20 smalleye whiprays at Manta Bommie, Brisbane.

a little guide to

STINGRAYS



+ RAYS ARE OFTEN OVERSHADOWED BY THEIR MORE FAMOUS COUSINS, THE SHARKS, BUT WITH OVER 500 SPECIES THEY'RE JUST AS DIVERSE AND VARIED. AROUND 120 SPECIES OF RAYS HAVE BEEN RECORDED IN AUSTRALIAN WATERS, AND ARE FAR MORE ABUNDANT THAN SHARKS IN MOST AREAS. STINGRAYS ARE ONE OF THE BETTER KNOWN FAMILY OF RAYS, AS MOST LIVE IN SHALLOW WATER AND ARE REGULARLY ENCOUNTERED BY DIVERS.

Stingrays feed by day and night on crustaceans, worms, molluscs and fish, digging up most of their prey from sandy bottoms. Despite their defensive tail spines, stingrays can fall prey to large sharks, so spend most of the day under a covering of sand or hidden in caves, shipwrecks and under ledges, while larger stingrays boldly rest out in the open. Most inhabit shallow reefs, bays and estuaries, but a few live in freshwater and there's even a pelagic species. They're solitary creatures, but are seen in small to large groups feeding and possibly mating. All stingrays are ovoviviparous and give birth to around a dozen live young. Mating has been observed in a number of species with the male typically biting the females pectoral fin and inserting one clasper when positioned on top or when they are belly to belly. Around 20 species of stingrays are found in Australian waters and there's 13 in this guide.

Smooth Stingray *Dasyatis brevicaudata*

The largest of all stingrays, this is grey to grey-brown in colour, usually with a V shape of white spots around its head and it can reach over two metres wide and weigh over 350 kilograms. Its short tail is covered in tubercles and has a long tail spine. The smooth stingray is found in Australia's southern waters, from New South Wales to southern Western Australia, and also off southern Africa and New Zealand. Mating has been observed in this species with the male, and sometimes two males, biting onto a female's pectoral fin. The male then moves under the female and inserts one clasper. The mating rays then swim off the bottom and part after a few minutes. The young smooth stingrays are around 36 centimetres wide at birth.

Fairly common but not often seen by divers, this ray is found from shallow to deep water, off beaches and around rocky reefs. I've most regularly encountered them when diving off southern New South Wales from Forster to Merimbula, patrolling the reef or just resting on the bottom. These rays also enjoy fishermen's scraps, so can be seen under piers and where fishers clean their catches. They appear to be wary of divers.

Black Stingray *Dasyatis thetidis*

This ray is easily confused with the smooth stingray – they're similar in colour, size and shape, and are found in the same areas of southern Australia. But the black stingray has a longer tail covered in tubercles, and has rows of thorns covering its back. This ray is dark grey to black on its dorsal surface and reaches a width of 1.8 metres.

It's the most common stingray divers will encounter in New South Wales, often on rocky reefs in quite shallow water. When 10 years old and snorkelling at Terrigal I encountered my first one in only a metre of water. Within just a couple of minutes of entering the water, I saw a massive black flying saucer coming straight at me. Terrified, I went one way, the black stingray fled in the other. I later discovered my 'monster' was a local celebrity which fishermen fed on fish scraps.

Divers usually see these rays resting on rocks or sand, but they rarely cover themselves with sand. I've observed this species swimming in mid water at Seal Rocks in quite clear water about

10 metres off the bottom near a large school of yellowtail, so they may have been feeding. Black stingrays can be quite aggressive if cornered, raising their tail defensively at divers who swim too close. They don't care for groups of divers and usually swim off.

Mating hasn't been recorded in this species, but I once observed a large female and an amorous smaller male at Little Bay, Sydney. The male was swimming over and around the female; she wasn't interested at all. Ignoring his initial advances, she then raised her tail and pointed her spine at him each time he approached. He finally left her alone after almost 10 minutes.

Estuary Stingray *Dasyatis fluviorum*

This is rarely seen by divers as it prefers murky estuary waters where few divers venture, but they sometimes inhabit bays. This ray is found off Queensland, Northern Territory and northern New South Wales, and has also been recorded from Papua New Guinea. It reaches a width of 1.2 metres and is olive brown in colour. Very little information exists about it, but it's occasionally taken by prawn trawlers and is thought to feed on shellfish, especially oysters. I encountered two when diving the Yongala shipwreck off Townsville early one morning. I was first in; on the bottom I noticed two unusual brown rays lying partly under the sand next to the hull. As I got close they lifted out of the sand and slowly moved off. Later, my photos identified them as estuary stingrays.

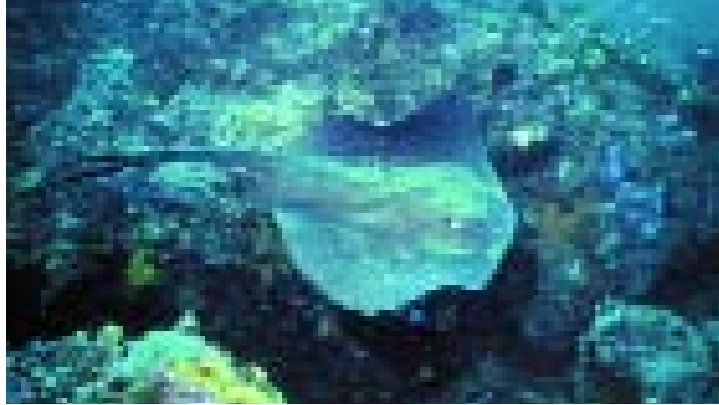
Blue Spotted Maskray *Dasyatis kuhlii*

These are small stingrays with a dark band across their eyes. Several maskray species are found in northern Australia, but only the blue spotted maskray is considered common. They grow to 50



centimetres wide and inhabits warm waters throughout the Indo-West Pacific and from northern New South Wales to central Western Australia. It has a diamond-shaped disc and along the underside of the tail is a small skin fold. Its dorsal surface is grey to sandy brown with a scattering of light blue spots and usually a few dark spots. I've noted variations in the populations of this ray. Northern species seem to be small with white bands on their tail and are very shy of divers. The population off southern Queensland and northern New South Wales are larger, lack tail banding and are easily approached by divers. The blue spotted maskray is quite common throughout its range and is usually seen resting under the sand near the edge of reefs during the day. Most are shy of divers and swim off with their tail held high when

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Around 60 stingrays species have been identified in tropical and temperate waters. Their disc varies from diamond shaped to circular, and even oval. Stingrays generally have long tails with no dorsal or caudal fins, but some have skin folds on the tail's ventral surface. Many stingrays have tubercles on their disc and tail, and all possess varying numbers of dagger-like tail spines which are used for defence. When threatened a stingray will lift its tail over its head and either thrust or slash with its spine – even tiger and hammerhead sharks have been found with spines in their mouths and heads. It was once thought the spine didn't grow back if it was lost, but I've since learned stingrays kept in aquariums do regrow their tail spines. A number of human fatalities have been attributed to stingray spines, generally due to an artery being cut or being stabbed in a vital organ. The spines are encased by venomous tissue and also have grooves to deliver venom into their victim, so always seek medical attention if cut by any rays spine. Luckily injuries from rays are rare, as they prefer to flee than fight, but never corner a stingray in a cave or against a wall – allow them room to move and you'll enjoy many friendly encounters.

approached; only the southern population can be closely observed – the southerners are so bold they even feed during the day and I've been within a metre of them as they dug into the sand with their mouths. They're usually solitary, but small groups can be seen resting or feeding in the same general area.

This ray seems to breed off southern Queensland in early summer – I've encountered dozens of them lying close together in twos and threes, even on top of one another. All pairs seem to be male and female, but I've not yet seen any mating. I observed a bizarre event at Shag Rock off Brisbane – I'd just descended and saw two blue spotted maskrays swimming close to the bottom – the male was hanging onto the female's tail with his teeth! All ray species seem to bite females around the pectoral fins during mating, but this was the first time I'd seen a male biting the females tail. I followed them for several minutes while the male was being towed; the female moved quite fast though the male only occasionally flapped his pectoral fins. After a few minutes the pair slowed, then the male let go. Suddenly she turned on him and chased him off into the distance.

Cowtail Stingray *Pastinachus sephen*

The cowtail has a solid tail with a long ventral skin fold towards the end of it and generally has a greyish brown to almost black disc, but off northern Western Australia brownish orange specimens have been seen. The cowtail stingray reaches 1.8 metres wide, while the young are only 20 centimetres wide at birth. These rays have a rhomboid disc with a pointed snout and small denticles over the centre of their backs. Found throughout the Indo-Pacific region, the cowtail has been recorded from northern New South Wales through our tropical waters to central Western Australia.

From top right, stingray behaviour:

- Blue-spotted maskray feeding in the sand at Shag Rock, Brisbane, Queensland
- A resting blue-spotted maskray erupting from the sand at Shag Rock, Brisbane, Queensland.
- Feeding cowtail stingray, Manta Bommie, Brisbane, Queensland.
- Tail-riding blue-spotted maskrays, Shag Rock, Brisbane, Queensland.

They're solitary and typically found around coral reefs, lagoons, estuaries and even in rivers. By day they usually lazing on the bottom partly/lightly covered in sand; their body mucus encourages sand to stick to their skin, even when swimming. Divers can usually get close to one without scaring it. I've found they're quite common on the shallow reefs off southern Queensland, from the Gold Coast to the Capricorn Bunker Group.

Blotched Fantail Ray *Taeniura meyeri*

It has a near-circular disc and grows to 1.8 metres wide with a short tail and ventral skin fold along half of its length. It's grey with a dense pattern of black blotches across its back. Larger rays have a bulky body trunk that makes them look fat. Found in tropical waters of the Indo-West Pacific, it's been recorded from central Western Australia to northern New South Wales, but its distribution is not clear in Australia. I've regularly encountered these on the Great Barrier Reef, but find them to be most common off southern Queensland. They're usually placid and can be observed closely, but if cornered they'll threaten divers with their tail spines. In daylight they're often seen resting in caves and under ledges, but rarely seem to hide under the sand. I've observed them sharing caves with spotted wobbegongs and grey carpet sharks.

A great spot to see this ray is on the Yongala shipwreck off Townsville, either sheltering under/inside the wreck or on the sand. They also swim around the top of the wreck and several can hover together in midwater above the wreck. This hovering behaviour is quite unusual in a stingray and may be a feeding strategy as there's a large number of fish around the Yongala. When hovering they can be approached by divers quite closely, allowing the rare sight of a stingray's ventral surface.

Blue Spotted Fantail Ray *Taeniura lymna*

This looks similar to the blue spotted maskray but has an oval disc and brighter blue spots. It's common around coral reefs and has been recorded throughout the Indo-Pacific region. Around Australia it's been found off Queensland, Northern Territory and northern Western Australia. It's yellowish brown, grows to 30 centimetres wide, has a fairly short tail with blue stripes on the side plus a minor underside skin fold.



It feeds night and day on high tide when groups move onto the reef flats seeking prey. At low tide they usually shelter under coral ledges but rarely bury themselves in sand. It's quite common on the Great Barrier Reef and can be found on reef flats in less than a metre; they're also found on reef faces, but seem to avoid deep water. This solitary, shy ray flees from divers when disturbed. If cornered under a ledge they can wave their tail spines to intimidate.

Mangrove Whipray *Himantura granulata*

These have very long whip-like tails with no skin folds. This distinctive ray has an oval shaped disc, pointed snout, a blackish dorsal surface with small white spots plus a long white tail. It grows to 1.3 metres-plus wide and is found in Northern Territory, Queensland, northern Western Australia, and in Indo-West Pacific. The mangrove whipray frequents shallow water around mangroves and estuaries, but it also ventures into bays and on to coral reefs. Divers seldom see this ray in Australia and the only ones I've observed were on a coral reef off Gizo in the Solomon Islands.

Reticulate Whipray *Himantura uarnak*

This ray grows to over 1.5 metres wide, is sandy-brown with a darker reticulated pattern on its dorsal surface. It's another

From the top:

- Smooth stingray at Long Point, Merimbula, New South Wales.
- Leopard whipray at Manta Bommie, Brisbane, Queensland.
- Smallle whipray at Manta Bommie, Brisbane, QLD.
- Mangrove whipray at Gizo, Solomon Islands

marine life°

tropical species found off northern Western Australia to Queensland and in the Indo-West Pacific. Little is known about it or its distribution. I've encountered it in southern Queensland, but first found them off Double Island Point, Rainbow Beach on the sand where a number of stingray species also feed. On one dive I encountered three reticulate whiprays resting under the sand; two fled but the third stayed for photos at close quarters.

Leopard Whipray *Himantura undulata*

This is easily confused with the reticulate whipray but is identified by its circular spots on its dorsal surface. It reaches a width of 1.4 metres and has a very long tail. It's sandy-brown with leopard-like spots. It ranges throughout the Indo-West Pacific and along the northern coast of Western Australia, Northern Territory and Queensland. Off Queensland it was thought to be only found in the far north, but I've encountered dozens of them off Brisbane, thus extending its range several thousand kilometres. The leopard whipray is probably the most attractive stingray. It appears to be solitary and I've observed them resting and feeding during the day. I've often seen them resting with other rays, such as the white spotted guitarfish, blue spotted maskray and the smalleye whipray. The leopard whiprays I've encountered don't appear to be too worried by divers and they'll even continue to feed as long as they don't feel threatened.

Pink Whipray *Himantura fai*

This ray is also known as the Tahitian stingray and looks quite similar to the undescribed smalleye whipray, but has a sharper nose, is much smaller with a much longer tail. Little is known about it. It's light grey to pink-grey in colour and most of its tail is black. The pink whipray is thought to grow to one metre wide, but may reach 1.5 metres, and is an impressive length of five metres if you include its tail!

Distribution of the pink whipray is still unclear, but it has been recorded in both the Indian and Pacific Oceans, from India to Thailand, Micronesia to Polynesia, and from the tropical waters of Australia. It has been noted gathering in feeding aggregations in shallow reef lagoons. I've only encountered one of these while diving North Stradbroke Island. It was shy and I first spotted it feeding alongside a cowtail stingray. I encountered the ray several times on the dive and got close enough for several shots. I was impressed by its tail length, the longest tail of any stingray.

Roundnose Whipray *Himantura sp.*

Very little is known about this ray and it is awaiting description. Black to greyish blue, it grows to about a metre wide. It can be identified by the row of denticles on its back. It's been recorded off Queensland, Lord Howe Island and South Africa, but is probably more widespread. I've only seen one of these and it was on Flinders Reef in the Coral Sea. It was feeding on the sand and it had a trevally strategically lurked above it's back to intercept escaping prey. The ray grubbed in the sand with its mouth raising clouds of

From top left:

- Roundnose whipray with its trevally escort at Flinders Cay in the Coral Sea off Queensland.
- Pink whipray at Manta Bommie, Brisbane, Queensland.
- Estuary stingray under the *Yongala* shipwreck, Townsville, Queensland.
- Black stingray, Little Bay, Sydney, NSW.

From top right:

- Cowtail stingray at Manta Bommie, Brisbane, Queensland.
- Blotched fantail ray at Cook Island off Tweed Heads, New South Wales.



sand and the trevally charged in for food scraps. It also seemed to get a ride when the ray moved to a new feeding spot.

Smalleye Whipray *Himantura sp.*

This is another undescribed species; until recently it had only been recorded off Thailand and India, but I've now recorded it off Brisbane as well. The smalleye whipray has very large spiracles, is greyish brown, lacks denticles on its back, and grows to about 2 metres wide.

I've regularly encountered this ray off North Stradbroke Island in less than 15 metres. They're usually observed solo, but I've also seen schools of 20 or more resting under the sand and on top of each other. When resting they can be approached, but if one gets fidgety, they all start to move and great clouds of sand erupt as they shuffle around. I've also watched them swimming around the reef in large groups, either following each other or side by side. They also swim circuits – on a few dives I've had the same school swim past half a dozen times. Smalleye whiprays are far easier to approach when a single ray is resting on the bottom.

Species of Australian stingrays not included in this article are found in deep water or are restricted to tropical areas I haven't yet dived. Encounters with stingrays are always interesting and with so little known about them, divers have the chance to observe fascinating and unrecorded behaviour.

