

= Short @-@ tail stingray =

The short @-@ tail stingray or smooth stingray ( *Dasyatis brevicaudata* ) is a common species of stingray in the family *Dasyatidae* . It occurs off southern Africa , typically offshore at a depth of 180 ? 480 m ( 590 ? 1 @,@ 570 ft ) , and off southern Australia and New Zealand , from the intertidal zone to a depth of 156 m ( 512 ft ) . It is mostly bottom @-@ dwelling in nature and can be found across a range of habitats from estuaries to reefs , but also frequently swims into open water . The largest stingray in the world , this heavy @-@ bodied species grows upwards of 2 @.@ 1 m ( 6 @.@ 9 ft ) across and 350 kg ( 770 lb ) in weight . Its plain @-@ colored , diamond @-@ shaped pectoral fin disc is characterized by a lack of dermal denticles even in adults , and white pores beside the head on either side . Its tail is usually shorter than the disc and thick at the base . It is armed with large tubercles and a midline row of large thorns in front of the stinging spine which has the dorsal and ventral fin folds behind .

The diet of the short @-@ tail stingray consists of invertebrates and bony fishes , including burrowing and midwater species . It tends to remain within a relatively limited area throughout the year , preferring deeper waters during the winter , and is not known to perform long migrations . Large aggregations of rays form seasonally at certain locations , such as in the summer at the Poor Knight Islands off New Zealand . Both birthing and mating have been documented within the aggregations at Poor Knights . This species is aplacental viviparous , with the developing embryos sustained by histotroph ( " uterine milk " ) produced by the mother ; the litter size is 6 ? 10 . The short @-@ tail stingray is not aggressive but is capable of inflicting a potentially lethal wound with its long , venomous sting . It is caught incidentally by commercial and recreational fisheries throughout its range , usually surviving to be released . Because its population does not appear threatened by human activity , the International Union for Conservation of Nature ( IUCN ) has listed it under Least Concern .

= = Taxonomy = =

The original description of the short @-@ tail stingray was made by Frederick Wollaston Hutton , Curator of the Otago Museum , from a female specimen 1 @.@ 2 m ( 3 @.@ 9 ft ) across caught off Dunedin in New Zealand . He published his account in an 1875 issue of the scientific journal *Annals and Magazine of Natural History* , in which he named the new species *Trygon brevicaudata* , derived from the Latin *brevis* ( " short " ) and *cauda* ( " tail " ) . Subsequent authors have assigned this species to the now @-@ obsolete genus *Bathytoshia* , and then to *Dasyatis* . The short @-@ tail stingray may also be referred to as giant black ray , giant stingray , New Zealand short @-@ tail stingaree , Schreiners ray , short @-@ tailed stingaree , shorttail black stingray , and smooth short @-@ tailed stingray . It is closely related to the similar @-@ looking but smaller pitted stingray ( *Dasyatis matsubarae* ) of the northwestern Pacific .

= = Description = =

Heavily built and characteristically smooth , the pectoral fin disc of the short @-@ tail stingray has a rather angular , rhomboid shape and is slightly wider than long . The leading margins of the disc are very gently convex , and converge on a blunt , broadly triangular snout . The eyes are small and immediately followed by much larger spiracles . The widely spaced nostrils are long and narrow ; between them is a short , skirt @-@ shaped curtain of skin with a fringed posterior margin . The modestly sized mouth has an evenly arched lower jaw , prominent grooves at the corners , and 5 ? 7 papillae ( nipple @-@ like structures ) on the floor . Additional , tiny papillae are scattered on the nasal curtain and outside the lower jaw . The teeth are arranged with a quincunx pattern into flattened surfaces ; each tooth is small and blunt , with a roughly diamond @-@ shaped base . There are 45 ? 55 tooth rows in either jaw . The pelvic fins are somewhat large and rounded at the tips .

The tail is usually shorter than the disc and bears one , sometimes two serrated stinging spines on

the upper surface , about halfway along its length . It is broad and flattened until the base of the sting ; after , it tapers rapidly and there is a prominent ventral fin fold running almost to the sting tip , as well as a low dorsal ridge . Dermal denticles are only found on the tail , with at least one thorn appearing on the tail base by a disc width of 45 cm ( 18 in ) . Adults have a midline row of large , backward @-@ pointing , spear @-@ like thorns or flattened tubercles in front of the sting , as well as much smaller , conical thorns behind the sting covering the tail to the tip . The dorsal coloration is grayish brown , darkening towards the tip of the tail and above the eyes , with a line of white pores flanking the head on either side . The underside is whitish , darkening towards the fin margins and beneath the tail . Albino individuals have been reported . The short @-@ tail stingray is the largest stingray species , known to reach at least 2 @.@ 1 m ( 6 @.@ 9 ft ) in width , 4 @.@ 3 m ( 14 ft ) in length , and 350 kg ( 770 lb ) in weight . Reliable observers off New Zealand have reported sighting individuals almost 3 m ( 10 ft ) across . Mature females are about a third larger than mature males .

#### = = Distribution and habitat = =

The short @-@ tail stingray is common and widely distributed in the temperate waters of the Southern Hemisphere . Off southern Africa , it has been reported from Cape Town in South Africa to the mouth of the Zambezi River in Mozambique . Along the southern Australian coast , it is found from Shark Bay in Western Australia to Maroochydore in Queensland , including Tasmania . In New Zealand waters , it occurs off North Island and the Chatham Islands , and rarely off South Island and the Kermadec Islands . Records from northern Australia and Thailand likely represent misidentifications of *Himantura fai* and *D. matsubarai* respectively . Over the past few decades , its range and numbers off southeastern Tasmania have grown , possibly as a result of climate change .

Off southern Africa , the short @-@ tail stingray is rare in shallow water and most often found over offshore banks at a depth of 180 to 480 m ( 590 to 1 @.@ 570 ft ) . On the other hand , off Australia and New Zealand it is found from the intertidal zone to no deeper than 156 m ( 512 ft ) . Australian and New Zealand rays are most abundant in the shallows during the summer . A tracking study conducted on two New Zealand rays suggests that they shift to deeper waters during the winter , but do not undertake long @-@ distance migrations . The short @-@ tail stingray is mainly bottom @-@ dwelling in nature , inhabiting a variety of environments including brackish estuaries , sheltered bays and inlets , sandy flats , rocky reefs , and the outer continental shelf . However , it also makes regular forays upward into the middle of the water column .

#### = = Biology and ecology = =

The short @-@ tail stingray is usually slow @-@ moving but can achieve sudden bursts of speed , flapping its pectoral fins with enough force to cavitate the water and create an audible " bang " . It is known to form large seasonal aggregations ; a well @-@ known example occurs every summer ( January to April ) at the Poor Knights Islands off New Zealand , particularly under the rocky archways . In some areas it moves with the rising tide into very shallow water . Individual rays tend to stay inside a relatively small home range with a radius of under 25 km ( 16 mi ) . Captive experiments have shown it capable of detecting magnetic fields via its electroreceptive ampullae of Lorenzini , which in nature may be employed for navigation .

The short @-@ tail stingray forages for food both during the day and at night . It feeds primarily on benthic bony fishes and invertebrates , such as molluscs and crustaceans . The lateral line system on its underside allows it to detect the minute water jets produced by buried bivalves and spoon worms , which are then extracted via suction ; the excess water is expelled through the spiracles . Fishes and invertebrates from open water , including salps and hyperiid amphipods , are also eaten in significant quantities . Off South Africa , this ray has been observed patrolling the egg beds of the chokka squid ( *Loligo vulgaris reynaudii* ) during mass spawnings , capturing squid that descend to the bottom to spawn . The short @-@ tail stingray has few predators due to its size ; these include the copper shark ( *Carcharhinus brachyurus* ) , the smooth hammerhead ( *Sphyrna zygaena* ) , the

great white shark ( *Carcharodon carcharias* ), and the killer whale ( *Orcinus orca* ) . When threatened , it raises its tail warningly over its back like a scorpion . Smaller fishes have been observed using swimming rays for cover while hunting their own prey . Known parasites of this species include the nematode *Echinocephalus overstreeti* , and the monogeneans *Heterocotyle tokoloshei* and *Dendromonocotyle* sp .

#### = = = Life history = = =

The summer aggregations of the short @-@ tail stingray at the Poor Knights Islands seem to at least partly serve a reproductive purpose , as both mating and birthing have been observed among the gathered rays . Courtship and mating take place in mid @-@ water , and it has been speculated that the rising current flowing continuously through the narrow archways aids the rays in maintaining their position . Each receptive female may be followed by several males , who attempt to bite and grip her disc . One or two males may be dragged by the female for hours before she accedes ; the successful male flips upside @-@ down beneath her , inserting one of his claspers into her vent and rhythmically waving his tail from side to side . Copulation lasts 3 ? 5 minutes . Females in captivity have been observed mating with up to three different males in succession .

Like other stingrays , the short @-@ tail stingray is aplacental viviparous : once the developing embryos exhaust their yolk supply , they are provisioned with histotroph ( " uterine milk " , enriched with proteins , lipids and mucus ) produced by the mother and delivered through specialized extensions of the uterine epithelium called " trophonemata " . Females bear litters of 6 ? 10 pups in the summer ; males appear to assist in the process by nudging the female 's abdomen with their snouts . Females are ready to mate again shortly after giving birth . Newborns measure 32 ? 36 cm ( 13 ? 14 in ) across .

#### = = = Human interactions = = =

Curious and unaggressive , the short @-@ tail stingray may approach humans and can be trained to be hand @-@ fed . At Hamelin Bay in Western Australia , many short @-@ tail stingrays , thornail stingrays ( *D. thetidis* ) , and Australian bull rays ( *Myliobatis australis* ) regularly gather to be hand @-@ fed fish scraps ; the number of visitors has steadily increased in recent years , and there is interest in developing the site as a permanent tourist attraction . However , if startled or harassed this species is capable of inflicting a serious , even fatal wound with its sting . The sting can measure over 30 cm ( 12 in ) long and penetrate most types of footwear , including kevlar boots ; its mucous sheath contains a toxin that causes necrosis . The most dangerous injuries involve damage to a vital organ , massive blood loss , and / or secondary septicemia or tetanus . There have been cases where a startled ray had jumped out of the water and pierced a wader 's chest cavity . This species is responsible for the majority of stingray injuries off New Zealand .

Throughout its range , the short @-@ tail stingray is caught incidentally by various commercial fisheries using trawls , Danish and purse seines , longlines and set lines , and drag and set nets . It is also caught by recreational fishers using hook @-@ and @-@ line ( from boats or the shore ) , spears , and harpoons . Most individuals caught are released alive ; often fishers cut off their tails beforehand for safety , though this practice does not seem to have a significant impact on the rays ' long @-@ term survival . Sport fishers occasionally keep captured rays for meat or angling competitions ; a small number are also kept for display in public aquariums , and it has reproduced in captivity . As it survives fishing activities well and remains common throughout its range , the International Union for Conservation of Nature ( IUCN ) has assessed the short @-@ tail stingray as Least Concern . Within most of this species ' range off New Zealand , targeting it commercially is prohibited .