

= Estuary stingray =

The estuary stingray (*Dasyatis fluviorum*), also called the estuary stingaree or brown stingray , is a species of stingray in the family Dasyatidae . Endemic to eastern Australia , it typically inhabits shallow , mangrove @-@ lined tidal rivers , estuaries , and bays in southern Queensland and New South Wales . This yellow @-@ brown to olive ray grows to at least 93 cm (37 in) across . It has a diamond @-@ shaped pectoral fin disc and a mostly smooth , whip @-@ like tail bearing both dorsal and ventral fin folds . It can additionally be identified by its long , narrow nostrils and the row of thorns along the midline of its back .

While the estuary stingray has gained infamy for consuming farmed shellfish such as oysters , it mainly feeds on crustaceans and polychaete worms . It is aplacental viviparous , with the unborn young sustained to term by maternal histotroph (" uterine milk ") . Once common , this species has apparently declined across much of its range , likely from a combination of habitat degradation , mortality from commercial and recreational fishing , and persecution by shellfish farmers . As a result , the International Union for Conservation of Nature (IUCN) has assessed it as Vulnerable .

= = Taxonomy = =

The first reference to the estuary stingray in scientific literature was probably a record by 19th @-@ century English naturalist William Saville @-@ Kent of a " *Trygon pastinaca* " feeding on oysters in a Queensland estuary . This species was formally described by Australian ichthyologist James Douglas Ogilby in a 1908 volume of Proceedings of the Royal Society of Queensland , based on a specimen collected from the Brisbane River . The specific epithet *fluviorum* means " of the rivers " in Latin .

= = Description = =

The estuary stingray has a diamond @-@ shaped pectoral fin disc about as wide as long , with gently convex anterior margins and broadly rounded outer corners . The snout is wide and triangular , and tapers to a point . The small , widely spaced eyes are immediately followed by the spiracles . Between the long and narrow nostrils , there is a short and broad " skirt " of skin with a weakly fringed posterior margin . The small , bow @-@ shaped mouth is surrounded by deep furrows and contains a row of five papillae across the floor , with the outermost pair tiny and set apart from the others . The teeth are small and arranged into pavement @-@ like surfaces . There are five pairs of gill slits beneath the disc . The pelvic fins are relatively large .

The tail measures twice as long as the disc , and is broad and flattened at the base . On its upper surface is at least one , often two serrated stinging spines . Past the spines , the tail quickly tapers to become whip @-@ like and bears a well @-@ developed keel above and a long , low fin fold beneath . There are wide patches of small dermal denticles with flattened crowns between the eyes and over the middle of the back , along with a midline row of enlarged thorns that become progressively longer until they reach the base of the sting . Aside from the thorns at the base , the tail is smooth . This species is yellowish to greenish brown above , lightening towards the disc margins and darkening past the tail spine , and white below . It grows to at least 93 cm (37 in) across , and possibly reaches a width of 1 @.@ 2 m (3 @.@ 9 ft) . Its maximum recorded weight is 6 @.@ 1 kg (13 lb) .

= = Distribution and habitat = =

The range of the estuary stingray spans approximately 1 @, 700 km (1 @, 100 mi) along Australia 's eastern coast , from Repulse Bay in Queensland to the Hacking River in New South Wales . It is most common in southern Queensland , including in Hervey Bay and Moreton Bay . This species was formerly suspected to have disappeared from Botany Bay and Port Jackson in the 1880s , but recent observations have shown this is not the case . Additional species records from

the Cape York Peninsula , Northern Territory , New Guinea , and the South China Sea probably represent misidentifications of other stingrays , primarily the freshwater whipray (*Himantura dalyensis*) and the Merauke stingray (*D. longicauda*) .

The habitat requirements of the estuary stingray appear to be rather stringent , as significant numbers are only found at particular locations . It prefers tidal rivers and the intertidal flats of estuaries and bays , which are lined with mangroves and have sandy to muddy bottoms . This species is rarely found outside these sheltered areas , though it has been recorded to a depth of 28 m (92 ft) in offshore waters . It inhabits marine and brackish waters , and may be able to tolerate fresh water as well as it has been known to swim upriver beyond the limit of high tide . Surface water temperatures within its range vary from 24 ? 29 ° C (75 ? 84 ° F) in the north to 17 ? 23 ° C (63 ? 73 ° F) in the south . This species seems to segregate by size and sex .

= = Biology and ecology = =

Despite its reputation for preying voraciously on oysters and other farmed shellfish , the estuary stingray 's diet in fact consists mainly of crustaceans and polychaete worms . In Moreton Bay , an important prey species is the soldier crab (*Mictyris longicarpus*) . This ray has been observed entering mudflats with the rising tide to forage for food . Known parasites of the estuary stingray include the tapeworm *Shirleyrhynchus aetobatidis* , the nematode *Echinocephalus overstreeti* and the monogeneans *Heterocotyle chin* , *Empruthotrema dasyatidis* and *Neoentobdella cribbi* .

Like other stingrays , the estuary stingray exhibits aplacental viviparity , with the developing embryos sustained initially by yolk and later by histotroph (" uterine milk ") produced by the mother . Females probably produce offspring every year . Courtship , in which the male follows the female and bites her disc , has been observed at night in water approximately 80 cm (31 in) deep in Hays Inlet from July to October . The newborns measure around 11 cm (4 @. @ 3 in) across and 35 cm (14 in) long . Young rays have been caught in the Nerang and Macleay Rivers and in Hays Inlet ; such fresh or brackish environments may serve as nurseries . Males mature at around 41 cm (16 in) across and seven years of age , and females mature at around 63 cm (25 in) across and 13 years of age . This disparity in maturation size between the sexes is among the widest known for stingrays . The maximum lifespan is estimated to be 16 years for males and 23 years for females .

= = Human interactions = =

Historical and anecdotal evidence strongly suggest that the once @-@ abundant estuary stingray has declined substantially across its range . Although it is not commercially utilized , it faces a number of other threats . This species is captured incidentally by commercial bottom trawl and gillnet fisheries ; bycatch mortality is exacerbated by the practice of " spiking " , in which the ray 's cranium is pierced with a metal bar or sharpened stick so as to move it . It is also readily caught , and often killed , by recreational anglers . Surveys in Moreton Bay have found fishing @-@ related effects , such as embedded hooks and mutilated tails , in over 10 % of the population . Habitat degradation is another major threat to the estuary stingray , especially given its habitat specificity . Its range encompasses some of the most urbanized areas in Australia , where there is extensive land reclamation , water pollution , and construction of flood mitigation barriers on rivers . Finally , this ray 's reputation for damaging shellfish has led to persecution by commercial shellfish farmers .

The estuary stingray 's diminished population and susceptibility to multiple threats have led the International Union for Conservation of Nature (IUCN) to assess it as Vulnerable . Demographic modelling has shown that it is likely to become Endangered without intervention . Several Marine Protected Areas (MPAs) are located within its range , but at present they lack adequate protection from fishing . As this ray remains locally abundant in Hervey Bay and parts of Moreton Bay , these areas may become important centers for preserving the species . The Queensland government has listed the estuary stingray on the Back on Track species prioritisation framework , to facilitate the development of conservation measures .