

= Coffin ray =

Hypnos monopterygius also known as the Coffin ray is a species of electric ray endemic to Australia, where it is common in inshore waters shallower than 80 m (260 ft). It is the sole member of its family Hypnidae . This small species typically reaches 40 cm (16 in) in length . Greatly enlarged pectoral fins and an extremely short tail , coupled with diminutive dorsal and caudal fins all concentrated towards the rear , give the coffin ray a distinctive pear @-@ like shape . It is a varying shade of brown in color above , and has tiny eyes and a large , highly distensible mouth .

The sluggish and nocturnal coffin ray frequents sandy or muddy habitats , where it can bury itself during daytime . It can produce a powerful electric shock reaching 200 volts for attack and defense . This species is a voracious predator that feeds mainly on benthic bony fishes , often tackling fish approaching or exceeding itself in size . On occasion , it may also consume invertebrates and even small penguins and rats . Reproduction is aplacental viviparous , in which the developing embryos are nourished by yolk and maternally produced histotroph (" uterine milk ") . The female gives birth to 4 ? 8 pups during summer . The coffin ray can deliver a severe , albeit non @-@ fatal , shock to a human . Not valued commercially , it is very hardy and can usually survive being captured and discarded . The International Union for Conservation of Nature (IUCN) has listed this species under Least Concern , as its population does not seem threatened by human activity .

= = Taxonomy and phylogeny = =

The first scientific reference to the coffin ray was written by English zoologist and botanist George Shaw to accompany Frederick Polydore Nodder 's illustrations of a beached fish , published in their 1795 work *The Naturalist 's Miscellany* . Shaw interpreted the specimen as a goosefish , calling it the " single @-@ finned *Lophius* " or *Lophius monopterygius* in Latin . Independently , French zoologist Auguste Duméril described a new electric ray in an 1852 volume of the journal *Revue et Magasin de Zoologie* , based on two specimens collected off New South Wales . He named it *Hypnos subnigrum* ; the genus name is derived from the Greek word for " sleep " , referring to the ray 's ability to induce numbness . Eventually , Gilbert Percy Whitley recognized that Nodder had illustrated the same species that Duméril had described , and thus the proper binomial name became *Hypnos monopterygius* . In 1902 , Edgar Ravenswood Waite proposed *Hypnarce* as a replacement name for *Hypnos* , which he believed was preoccupied by the butterfly genus *Hypna* . However , the International Code of Zoological Nomenclature (ICZN) does not seem to require the change , and thus *Hypnarce* is regarded as a junior synonym .

The common name " coffin ray " comes from the coffin @-@ like shape of beached specimens , which become bloated after death . This species may also be referred to as crampfish , electric ray , numbfish , numbie , short @-@ tail electric ray , or torpedo . Phylogenetic studies , based on morphology , have found that *Hypnos* is most closely related to the genus *Torpedo* . Hence , some taxonomists classify it with *Torpedo* in the family *Torpedinidae* (in its own subfamily , *Hypninae*) . On the other hand , there are also taxonomists who believe *Hypnos* to be distinctive enough to merit its own separate family , *Hypnidae* .

= = Distribution and habitat = =

The coffin ray has a wide but disjunct distribution in tropical and warm @-@ temperate Australian waters . The western part of its range extends from Gulf St Vincent in South Australia to Broome in Western Australia , and the eastern part from Eden in New South Wales to Heron Island in Queensland . It does not occur off Victoria or Tasmania . This common , bottom @-@ dwelling species is typically found close to shore , no deeper than 80 m (260 ft) , though it has been recorded from as deep as 240 m (790 ft) . It favors habitats with sandy or muddy bottoms , including beaches , estuaries , and bays , and can also be found over seagrass as well as on and around rocky and coral reefs .

== Description ==

The unusual pear @-@ like shape of the coffin ray distinguishes it from all other rays . Its body is flabby , with two large , kidney @-@ shaped electric organs visible on both sides of the head . The pectoral fins form a greatly enlarged disc about as wide as long , that is thick at the center and thin at the margins . The leading margin of the disc is straight to gently concave . The eyes are minute and can be elevated on short stalks . Close behind the eyes and slightly larger are the spiracles , which are rimmed by small papillae in some individuals . The nostrils are located just ahead of the mouth , and are connected to it by a pair of broad grooves . Between the nostrils is a short curtain of skin that overlaps the mouth . The capacious mouth forms a very long , wide arch ; the slender jaws can be distended dramatically , though are not particularly protrusible . Adults have over 60 rows of small teeth in either jaw ; each tooth has three long cusps . The five pairs of gill slits are small and placed beneath the disc .

The pelvic fins are relatively large and merged with the pectoral fin disc at the front to form a roughly circular secondary disc . The two dorsal fins are shaped like rounded lobes and are located very close to the caudal fin , which is of similar size with a nearly symmetrical , rounded margin . The tail is extremely short , such as that the caudal fin barely extends past the pelvic fin disc . The skin is entirely devoid of dermal denticles , and may be creased in areas . The dorsal coloration ranges from dark to reddish brown , to grayish , pinkish , or yellowish , and may be plain or sparsely patterned with irregular darker and lighter markings . The underside is pale , as are the spiracle papillae . This species grows to a length of 70 cm (28 in) , or possibly even 92 cm (36 in) , though most are only around 40 cm (16 in) long .

== Biology and ecology ==

The coffin ray is a slow and weak swimmer that moves forward with a jerky , fluttery motion . It is nocturnal and spends most of the day buried in sediment with only its spiracles showing . When disturbed , it has been observed performing a possible defense behavior , wherein it erupts from the bottom and swims in a loop with its mouth agape . This species is sometimes stranded on land by the ebbing tide , but can survive out of water for hours . Like in other electric rays , the coffin ray 's electric organs are derived from muscle tissue and consist of numerous vertical columns , each formed from a stack of jelly @-@ filled " electric plates " that essentially acts as a battery . It is capable of generating up to 200 volts of electricity and delivering 50 shocks over span of ten minutes , with each successive shock weakening . The coffin ray employs electricity both to subdue prey and deter predators .

The diet of the coffin ray consists mostly of benthic bony fishes , but also includes cephalopods and on occasion crustaceans and polychaete worms . Penguins and rats have also been recorded from the stomachs of this species . The coffin ray ambushes prey from the substrate , and swallows them whole head @-@ first before re @-@ burying . It often takes extremely large prey relative to its size ; one observed individual 60 cm (24 in) long had swallowed a flathead (*Platycephalus* sp .) 70 cm (28 in) long , and the tail of the prey fish was still protruding from its mouth . Dead specimens have been recovered that had apparently choked trying to swallow too @-@ large prey . The coffin ray is aplacental viviparous , in which the developing embryos are nourished by yolk , later supplemented by histotroph (" uterine milk ") secreted by the mother . Females give birth to litters of 4 ? 8 pups in summer ; the newborns measure approximately 8 ? 11 cm (3 @.@ 1 ? 4 @.@ 3 in) long . Males and females both attain sexual maturity around 40 ? 48 cm (16 ? 19 in) long . This species is known to be parasitized by the tapeworms *Acanthobothrium angelae* and *Lacistorhynchus dollfusi* , and the nematode *Echinocephalus overstreeti* .

== Human interactions ==

When approached , the coffin ray tends to keep still in its place of concealment on the sea floor . As a result , many divers , swimmers , and bathers have been shocked after accidentally contacting it .

While not life @-@ threatening , the shock can be quite severe . The shock can still be perceived by a person pouring a stream of seawater on the ray . The coffin ray has no economic value . In 1883 , Edward Pierson Ramsay noted that it was the only ray native to Port Jackson that was inedible . It is caught incidentally by commercial trawlers , but is hardy enough to usually be returned to the water alive . It is also caught in lobster traps and infrequently taken by spear fishers . As it remains common and widespread , the International Union for Conservation of Nature (IUCN) has assessed this species as Least Concern . It has been kept in public aquariums , but requires moving food .